

*Possible Applications of
Mental Tests to Social
Theory and Practice*



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**POSSIBLE APPLICATIONS
OF MENTAL TESTS TO SOCIAL
THEORY AND PRACTICE**

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Chapter I.

THE PROBLEM STATED.

Race and Culture.

Perhaps there is no more important development in psychology or education in recent years than the so called mental testing movement. Certainly nothing has come out of the psychological laboratory which has attracted more popular attention. As is often the case with newly discovered knowledge, which, often times, is half discovered knowledge, attempts are immediately made to use it in the solution of old problems, and to apply it to practical affairs. Professor Balz, in a recent book, (1) describes this tendency thus: "The conviction that psychology should be of value for the study of social phenomena and for the guidance of social action has a tendency to lead to hasty generalization and to breed somewhat extravagant hopes". It is just these generalizations, growing out of the application of the intelligence tests to social theory and to social problems, which we wish to outline and criticize in this study. It will be our purpose, in this first chapter, to outline these conclusions so that we may see exactly the nature of the problem.

The socio-political theories growing out of the use of the mental tests seem to be part of a general tendency to emphasize increasingly the importance of the inborn or hereditary nature of individuals in explaining their behavior or in accounting for the differences in culture between races and nations." This tendency is a part of what one writer has called the "eugenics cult" (2) which, perhaps, takes its most extreme form in the Nordic propaganda of Grant and Stoddard. The first point in the argument of some of the popularizers of the intelligence tests, then, seem to be this: Every civilization is dependent on the native qualities of the people who bear it, and is an index to the inborn intellectual capacities of that race or nation. If this statement is not explicitly made it is implied in what these writers have to say. Thus Professor McDougall writes: "My thesis is that the anthropological theory is the true one, that the great condition of the decline of any civilization is the inadequacy of the qualities of the people who bear it. (3) Further on in the same book he says: "Each people that has attained a high level of civilization has done so on the basis of the

1. Balz, A. G. A. THE BASIS OF SOCIAL THEORY. Page 4.

2. Darrow Clarence, "The Eugenics Cult" AMERICAN MERCURY, May 1926.

3. IS AMERICA SAFE FOR DEMOCRACY? Page 12.

intellectual and moral qualities of the races which have entered into its composition. The combination of qualities peculiar to each race was formed and fixed during the long ages of the pre-historic period, compared with which the historic period of some 2500 years is very brief".(4) Another writer makes this statement: "Civilization depends on the qualities of the people who bear it.....So long as these men and women are able to support it, the structure rises broad based and serene; but let the living foundations prove unequal to their task and the mightiest civilization sags, cracks, and at last crashes into chaotic ruin."(5) Again quoting from this same writer: "It is this thin red line of untainted blood which stands between us and barbarism or chaos..... Let us not deceive ourselves by prating about government, education, democracy; our laws, our constitutions, our very sacred books, are, in the last analysis mere paper barriers which will hold only so long as there stand behind them men and women with the intelligence and the character to maintain them".(6) Needless to say, such writers view "intelligence" and "character" as a part of the hereditary equipment of the race.

Social Significance of Intelligence.

Of these innate qualities upon which our civilization rests none is more important for the biological determinists than that of intelligence. The development of civilization and culture seems to them a matter of the progressive improvement of the germ place of the race. Thus one of them writes: "This means that when the volume of culture increases tremendously as it has done in recent years greater and greater mental power is required to absorb and recombine the cultural elements, and the greater the number of such individuals the greater the speed with which the recombination of cultural elements into a new invention will take place."(7) Even though it may be argued that only in the few who are the leaders is outstanding intelligence required, yet it is pointed out that intelligence is required to appreciate intelligence, and this power of appreciation seems to appear, to these writers at least, as an innate capacity to be improved only by selective breeding. The success of democracy, the intelligence of public opinion, the immunity of the masses to propaganda, the ability to choose wise leadership are all dependent on the intelligence of the masses. But this "intelligence" is not looked on as a matter of education and enlightenment, while these may be admitted to have something to do with it, but is regarded as fundamentally native and inherited. What is needed, then, is not so much education as eugenics.

The Meaning of Intelligence.

Before we proceed further, perhaps it would be advisable to state exactly what the psychologists mean by the term intelligence. While there is not complete agreement on the exact meaning of the term most students distinguish between intelligence and knowledge, information

4. Ibid. Page 146.

5. Stoddard L. THE REVOLT AGAINST CIVILIZATION. Page 9.

6. Ibid. Page 107.

7. Kirkpatrick Clifford. INTELLIGENCE AND IMMIGRATION. Page 3.

or learning. It is regarded rather as an innate capacity to learn. It is dependent on the maturation of the nervous structures of the brain and grows as long as they do, ceasing to develop when the nervous system has reached the limit of its physical growth. Professor Colvin defines it as "a group of innate capacities by virtue of which the individual is capable of learning in a greater or less degree in terms of the amount of these innate capacities with which he is endowed".(8) Another writer, after reviewing earlier definitions of intelligence, summarizes them in the following: ".....general intelligence is the innate capacity fixed with the conjugation of the chromosomes in the original cell, which, independently of environment, determines the differences and resemblances between individuals in ability to learn; the factors of power, speed, accuracy and versatility all being taken into account".(9)

Intelligence and Heredity

From what has been said about the nature of intelligence we see that it is regarded as hereditary. In a recent book on eugenics we read: "We have reason to believe not only that one's mental character is largely due to heredity, but that the details of it may be equally due to heredity".(10) Professor Goddard takes the following as the thesis of a recent series of lectures. "The chief determiner of human conduct is a unitary mental process which we call intelligence. This process is conditioned by a nervous mechanism that is inborn. The degree of efficiency to be attained by that nervous mechanism and the consequent grade of intelligence or mental level for each individual is determined by the kind of chromosomes which come together with the union of the germ cells".(11)

The evidence for the inheritance of native differences in mental capacity is drawn from a number of fields. By analogy, it is argued that as there are obvious inborn physical differences so also may we expect to find native differences in mental makeup, since mental constitution is based on physical structures. The fact that ability or capacity tends to characterize certain families is another line of proof which is offered. Karl Pearson and his followers have pursued this line of investigation. They find a comparatively high correlation in abilities between parents and children, and between children of the same family.(12) Others studies of eminent men seem to show that such eminence runs in families.(13)

Studies in degeneracy and feeble-mindedness point to the inheritance of degeneracy, or rather the lack of inheritance in capacity. Perhaps the best known are the studies of the Jukes and the Kallikaks.(14) The sporadic appearance of such traits as feeble-mindedness is pointed

8. Twenty first Year-book of The National Society for the Study of Education. Ch. I.

9. Kirkpatrick C. op. cit. Page 7.

10. Popenoe R. and Johnson, APPLIED EUGENICS. Page 97.

11. Goddard H. H. HUMAN EFFICIENCY AND LEVELS OF INTELLIGENCE. Page 1.

12. See Elderton E. M. "The Relative Strength of Nature and Nurture". EUGENIC LABORATORY SERIES, Lond, also BIOMETRIKA Vol. 14, Page 378ff. Madsen I. N. SCH. & SOC. Vol. 19, Pages 489, 556-652.

13. Galton F. HEREDITARY GENIUS, Woods F. A. "Heredity and the Hall of Fame". POP. SCI. MO. May 1913.

14. Goddard, H. H. THE KALLIKAK FAMILY.

to as proof of the segregation of mental traits according to the Mendelian principle. The likeness in mental as well as physical characteristics between identical twins is still another line of evidence.(15) Finally, it is argued, that since practice does not remove, but rather increases the differences between individuals in ability, we have proof positive of the inheritable nature of intelligence.(16) The general conclusion then seems to be, that the great differences which exist between men in mental ability are due largely to heredity.

The Measurement of Intelligence.

If intelligence is a native capacity the next problem, then, is to measure it. This the psychologist claims to have accomplished by means of intelligence or mental tests. While the more conservative exponents of the mental testing movement have been quite careful not to claim more for the tests than they have actually accomplished, some of the popularizers of the instruments have not been so careful. Under the fire of criticism, however, some of the early extravagant claims for the tests have been modified and a saner view has come to be adopted. In spite of this modification of opinion the assumption still is quite generally made that native capacity is being measured by the tests. Yoakum and Yerkes in their book, **Army Mental Tests**, make the following statement: "These examinations were intended and are now definitely known to measure native intellectual capacity"....."(17) Professor Lichtenberger, in a paper published in the **Proceedings of the American Sociological Society**, makes the following statement: "It is now possible to detect and to measure through the use of intelligence tests the degree of mental development attained by the individual irrespective of chronological age or of acquired knowledge".(18) Goddard makes the assertion that "It is possible to observe and measure this development (of intelligence) independent of acquired knowledge".(19) In his recent study Kirkpatrick reaches the conclusion that, while the development of control of certain environmental factors is desirable, "the intelligence tests give a rough classification of individuals as to probable achievement in appropriation and advancement of culture, and that the average success of groups in this respect may be quite accurately foretold".(20)

What Have the Tests Revealed?

If we now have measures capable of measuring innate mental ability what has the use of these instruments revealed? In the first place, the tests reveal large differences in native capacity between individuals. We find that intelligence, like any physical trait tends to distribute itself along the curve of probability.(21) We find, furthermore, that the average of intelligence for different classes or social strata in the community is markedly different. The socially fortunate

15. Thorndike, E. L. "Measurement of Twins" ARCHIVES OF PHIL. PSYCH. AND SCIENTIFIC METHOD. No. 1.

16. Starch, D. EDUCATIONAL PSYCHOLOGY.

17. ARMY MENTAL TESTS. Page 17.

18. Vol. 15, Page 102.

19. Op. Cit. Page 15.

20. Op. cit. Page 14.

21. There is not complete agreement on this point. See Boring E. G. AMER. JOURNAL OF PSYCH. Vol. 31, Pages 1-33.

classes contribute much more than their share of superior intelligence. This fact is held to prove that social stratification is the result of a process of natural selection, in which those with natural ability push their way to the top, and those who lack it, find their natural place in the lower levels. Thus we find those with high "I Qs" in the ranks of the wealthy and the powerful, while those who do the heavy work of the world are condemned to these lowly places by their lack of inherent mental ability. Social stratification thus reflects a natural stratification. Professor Terman finds, for example, that "intelligence of 110-120 I. Q. is approximately five times as common among children of superior social status as among children of inferior social status, the proportion among the former being 24% of all, among the latter 5% of all".(22)

The intelligence testers also find that there are very marked differences in intellectual capacity between different racial stocks. Thus the average mental ability of the white race far exceeds that of the negro race,(23) and is considerably higher than that of the oriental races. In the same way the native American stock is superior to most of the immigrant groups, and of the immigrant groups, those from north and west Europe are much more intelligent, at least on the basis of tests, than those from south and east Europe. The hypothesis of the superiority of the Nordic, set forth in its boldest form in Grant's **Passing of the Great Race**, seems to find ample confirmation in the results of racial testing. Brigham's **American Intelligence**(24) presents an elaborate array of statistics to demonstrate the superiority of the north European stock. A more recent study reaching much the same conclusions is Kirkpatrick's monograph, **Intelligence and Immigration**.(25) Other writers, less careful than these, have helped to contribute to the fear of an inundation by the intellectually inferior races of southern Europe.(26) A writer in a prominent American magazine makes the following statement: "There is no doubt that to throw our gates open to these groups is to add to our racial stocks the poorest Europe has to give".(27)

Conclusions Based on the Alleged Results of the Tests.

Now let us see what inferences are drawn from these results. Here lies the interest in the problem to the sociologist. A summary of the problem may be found in the following statements taken from an article by Professor P. E. Davidson.(28) "The spectacular significance of the army intelligence test data is found in their damaging consequences for certain pivotal articles of faith in the American social-political tradition. Because they demonstrate, at best, an adolescent mentality for the masses of the people, the traditional democratic aspiration for a social order resting on an enlightened and cultivated general will must be

22. MEASUREMENT OF INTELLIGENCE, Page 115.

23. See chapter on racial differences.

25. Kirkpatrick C., INTELLIGENCE AND IMMIGRATION. Mental Measurement, Monographs serial No. 2. Williams and Wilkins, 1926.

26. See Stoddards REVOLT AGAINST CIVILIZATION or Wiggam's THE NEW DECALOGUE OF SCIENCE or THE FRUIT OF THE FAMILY TREE.

27. Cannon C. J. "American Misgivings", AT. MO. Vol. 129, Pages 150-152.

28. "Social Significance of Army Intelligence Test Findings." SCI. MO. Feb. 1923, Page 184.

renounced. Obviously a relatively childish mentality cannot support institutions presupposing rationality and refinement. By implication society must be governed, however circumspectly, by the gifted minority. Because they have shown that class and income levels reflect a natural biological stratification, modern democratic movements looking toward the leveling of inequalities in income, social prestige and social power are doomed to futility and but serve to incite the less well to do to irrational discontent and reckless revolt. Because of the multitude elaborate and costly programs for universal education are illusory and wasteful, and should be circumscribed in the interest of the more able. If the army intelligence test findings justly support these serious strictures upon currently accepted notions, certainly their importance has not been exaggerated." While Professor Davidson refers only to the Army Tests practically the same kind of conclusions are being drawn from other studies.

The results of the tests, then, are said to justify some important conclusions. First, it is argued that mental inequalities make a democratic system impossible. Thus a prominent educator says: "The popular idea of a democracy is a delusion.....the world has never been a democracy and from the nature of the case it never can be" (29) By "the nature of the case" the writer means the natural inequalities existing between men in mental abilities. A second inference is that average American intelligence is too low for a democratic system. An efficient social order presupposes intelligence and rationality in the formation of social judgement. But one cannot expect rationality from a people whose average of mental capacity is no greater than that of a child of thirteen. This line of argument is well presented in Mrs. Cornelia Cannon's article, "American Misgivings". (30) Permit me paraphrase some of her remarks: If intelligence tests measure pure native intelligence, then we must reach the conclusion that 43.3% of the white draft who tested below a mental age of thirteen should be classed as morons. How does such a revelation affect our ideas of such democratic experiments as representation, the initiative, referendum, direct election of senators etc? Mrs. Cannon reaches the conclusion that the low grade man is material unusable in a democracy and that we must eliminate him from the electorate as we would the criminal, the insane, the idiot and the alien.

A third conclusion is, that civilization and culture are threatened by the increase of low grade intelligence, both because the less intelligent reproduce more rapidly than the superior and because we are admitting progressively poorer stock from abroad. Professor McDougall writes: "The civilization of America depends upon your continuing to produce A and B men in fair numbers. At present A men are 4% and B men 9%; and you are breeding from the lower side of the curve." [31] Professor Brigham concludes from his study of American intelligence: "According to all evidence available then, American intelligence is declining, and will proceed with an accelerating rate as the racial admixture becomes more and more extensive." [32]

29. Cutten G. B. "Education and Democracy," SCH. & SOC. Vol. 16, Page 477.

30. Op. cit. AT. MO. Vol. 129, page 155.

31. Op. cit. Page 168.

32. Op. cit. Page 210.

But not only is the situation as bad as we have described it in these first three statements, but the weapons which we have traditionally relied on to cope with the lack of intelligence, that is education and enlightenment, are powerless. Intelligence is inherent and unchangeable by education or acquired knowledge. There is no hope for this enormous mass of inferiority since it cannot profit by the results of training. Popular education is attempting the impossible, and the millions spent on it are spent on a lost cause. Thus Mrs. Cannon says: "Educational processes are helpless in the face of native capacity. . . . Professional training is becoming more, not less, expensive and the community has the right to decide to whom this higher education is to be given. A Public school system preparing for life young people of a race, 50 % of whom never reach a mental age of ten years is a system yet to be perfected." [33]

The Solution of the Problem.

How, then, shall our social, political and educational policy be shaped in the light of these conclusions? The answer is: an intellectual aristocracy chosen through the medium of intelligence tests. Since the masses are incapable of being raised to a higher plane our reliance must be on the few with superior intelligence. On these society must lavish its opportunities; the training of the large masses of mediocrity can safely be disregarded. Thus Professor Whipple says: "The future of democracy will be assured only when means are devised for picking out the superior and giving them the opportunities for superior training." [34] A biologist writes: "Hence the problem of education would be the determination of those with superior endowment, their training and education, the opening up of the upper social strata to them to create an aristocracy of brains. The unfit will go into the ranks of unskilled labor where they will be kept contented and harmless if their warped leaders are controlled. Any program of universal education is then a waste of money and energy, for most of those to be educated are unable to profit by any higher education." (35) An even more radical suggestion is that of Mr. George Adami in an address to the International Eugenics Conference in 1921. He would establish the true aristocracy by subjecting all persons at the age of eighteen to mental and physical tests. On this basis an hereditary aristocracy would be set up and an A stock established to become the parents of the next generation of the superior. Their names would be published periodically and thus make known what families carried superior qualities in their germ plasm. He writes: "Think how in years to come these annual publications would establish the good strains, the desirable families with which to become associated, how, in short, they would become the human stud book." (36) The plan outlined in Professor McDougall's book **Ethics and Some World Problems**, is substantially the same as the one just described.

33. Op. cit. Page 156.

34. "Intelligence Testing Program and its Objectors, conscientious and otherwise". SCH. AND SOC. Vol. 17, Page 562.

35. Parshley H. M. "Heridity and the Uplift" AMER. MERC. Feb. 1924.

36. "The True Aristocracy", EUGENICS REV. Vol. 14, Pages 174-186.

Besides these more general suggestions, their advocates see solutions to a number of our present day problems in the mental tests. They would tell us what race and nationalities it is wise to admit within our shores. They would throw light on the negro problem. Indeed it is not hard to find justification for the failure of the black race to achieve higher planes of social advancement in the light of their consistently low scores on the tests. Perhaps, the policy of the south of spending little on the education of the negro is justified by the negroes uneducability. Much light will also be thrown on such problems as crime, prostitution and pauperism. Professor Goddard estimates, for example, that judged by the intelligence tests at least fifty per cent of all criminals are feebleminded.(37)

We have now attempted to set forth some of the applications of mental tests to social theory, as they have been made by some writers. If they are valid their importance can hardly be overemphasized. Valid or not, they have considerably influenced current thought and merit careful and critical examination.

Chapter II.

THE ALLEGED RESULTS OF THE ARMY TESTS.

Importance of the Army Tests.

In our first chapter we have described in some detail the nature of the theories which have been built up on the intelligence tests. These theories had their beginning, at least, in the results of the Army tests, and the interpretation of these measures is still the primary basis for the deterministic philosophy sketched in the first chapter. There is some justification, therefore, in devoting some space to special consideration of the Army tests and the interpretation of the Army test data.

The tests have been interpreted as proving a relative low average mental ability for the Army, and by implications for the whole American people. It has thus been claimed that the intelligence of the average American is no greater than that of the average adolescent child. It is also claimed that the number who show really superior capacity is alarmingly small, only about 5% of the total. Wide differences in average ability are also said to exist between different classes and occupational groups, and between different national and racial groups! On the basis of these interpretations it is argued that a social and political system cannot depend on enlightened public opinion, since the great masses are incapable of being enlightened, that natural resources of leadership are extremely scarce and no expense must be spared in developing them even at the risk of neglecting the training of the masses, and finally, that race and occupational groups differ in their capacity to share the burdens of civilization, and hence public policy with reference to their treatment may be shaped in accordance with such differences.

In this chapter we wish to examine the basis for such interpretations. It will be no part of our purpose to criticise the intelligence tests themselves. They were designed to accomplish a very definite purpose; to pick out of the thousands of recruits those who could most quickly be trained as officers, and they achieved that purpose accurately and in a remarkably short time. It is the wider interpretations which we wish to discuss.

The assertions concerning the intelligence of the American people, or rather their surprising lack of intelligence, seems to rest on three

assumptions. In the first place, it is assumed that the subject examined are a fair sample of the whole American people and that the results of the examination are fairly typical of the people as a whole. Secondly, it is assumed that the tests measured purely innate capacity unaffected by training or experience. The third assumption is that the kind of abilities measured, capacities which the psychologists calls "intelligence", are most important in determining the ability of an individual to adjust himself to his social and economic environment. Let us now consider the validity of these assumptions.

The Mental Age of Americans

Our first consideration will be the problem of the average mental age of the Army and the American people. It will not be our purpose to show that the average intelligence of the American people is this or that. It is doubtful whether such a problem could be solved since it is hard to see where a standard could be made. We wish to examine the assertions about average intelligence which have already been made.

The average score of the Army was obtained by translating the scores of 653 soldiers representing the entire white draft into the Stanford-Binet Scale. This gave an average of 13.14 on the scale which was the same score as was made by eighty two California school children, fourteen years of age, on whom the scale was standardized.(2)

Ninety-three thousand men constituting a fair example of the whole draft were also given tests similar to the Stanford-Binet tests. Their average score was also thirteen years mental age. According to some of the early interpretations this would seem to mean that the average citizen of the United States (if we consider the white draft as a representative group) is just above the upper line of "borderline deficiency." (3) It would mean that about 20% of the general population of the country is definitely feeble-minded and that about 25% are on the borderline. Only a small per cent would attain a mental age of sixteen set by Terman as the average adult standard. To make such statements as these is patently absurd. What is the explanation? Mr. Lippman was one of the first to point out the fallacy.(4) To say that the average mental age of the army was the same as a thirteen year old child was to measure the whole army, and by inference the whole people, on a standard set by a comparatively small group of school children. Prof. Brigham points out the same fallacy in the following words: "To say that the average citizen has a mental age of a child of thirteen is putting the cart before the horse, for we are grading 93,955 people and by inference the entire country, on a standard fixed by some 82 fourteen year old school children who happened to be tested in California." (5) It is obvious that the tests in the upper age levels were too difficult for the average adult and that the soldier was heavily penalized by his unfamiliarity with the materials of which the tests were constructed, materials with which the school child would have a much greater chance to be familiar than the average soldier.

2. Brigham C. A. A STUDY OF AMERICAN INTELLIGENCE. Page 56.

3. Terman L. M. MEASUREMENT OF INTELLIGENCE, Chap. VI.

4. "The Mental Age of Americans", NEW REPUBLIC, Vol. 32, Pages 213-215.

5. Op. cit. Page 56.

What the average intelligence of the adult is, then, we do not know. Obviously the 93,000 men measured in the army constitute a much better norm than the relatively small group of children and business men on whom the original tests were standardized. There is considerable evidence that mental capacity does not cease to grow at adolescence. Professor Freeman says: "Intellectual growth does not cease at thirteen years and the adult does not possess the inherent intellectual limitations of the thirteen year old child. . . . The best evidence that I have seen on this point is that mental growth, as measured by the mental test score, continues well beyond thirteen years of age, and probably beyond sixteen." (6) It is said that recent research bears out this assertion. Remembering these facts makes a little less alarming the warning of those who "view with alarm" the low intellectual level of the American people.

Professor Terman believes that the mental age of the army tells us little about mental age among the people as a whole but for another reason. He believes that the group of 653 unselected white enlisted men was not typical of the army as a whole nor of the nation. (7) He believes that the draft itself was not typical of the whole population but tended to get more than its share of the less intelligent males between 21 and 31. Professor P. E. Davidson after a study of the figures reaches the same conclusion. He points out that a study of the occupational groups will show that the "farm" group was represented by farm labor, leaving out farm operators, that the independent members of the business community were largely left out, that the largest number of designations refer to artisan trades, clerical occupations and a few semi-professionals. He concludes: ". . . generalization from the selected groups do not accurately carry over the general public, and so fail to do justice to its intelligence." (8)

Professor Dearborn is another who feels that the army norms are too low. (9) On the other hand we find a number of psychologists who believe that the army norms were not too low, but if anything too high. (10)

These remarks are sufficient to indicate that there is considerable disagreement among the psychologists as to just what the average mental age of the population is, or as to whether or not generalization concerning the army results carry over to the general population. The problem is not one of fundamental importance for this study in any event. All we can learn is that in performing certain kinds of tasks, mostly school tasks, the average soldier has about the same degree of success as had the average child of the particular selected group of children of a certain age on which the tests were standardized.

6. "Mental Age of Adults," JOURNAL OF EDUCATIONAL RESEARCH, 1922, Vol. 6, Pages 441-444; also Pressey and Cole. "Applicability of Standard Tests to the Measurement of Adult Intelligence", JOURNAL OF ABNORMAL PSYCHOLOGY, Vol. 13, Pages 314-20.

7. "Mental Growth and the I. Q.", JOURNAL OF EDUCATIONAL PSYCHOLOGY, 1921, Vol. 12, Page 330.

8. "Social Significance of the Army Intelligence Findings" SCIENTIFIC MONTHLY, 1923, Vol. 16, Page 185.

9. "Intelligence Quotients of Adults and Related Problems", JOURNAL OF EDUCATIONAL RESEARCH, Vol. 6, Page 321.

10. See Kohs and Proctor, "Psychological Tests and Guidance of High School Pupils" JOURNAL OF EDUCATIONAL RESEARCH, MONOGRAPHS No. 1, 1921.

The Army Tests as Measures of Pure Native Capacity

Our next problem is the question as to what degree the army tests, or tests like them, measure inherent mental capacity unaffected by environmental factors, what Professor Terman has called "raw brain power." The generalizations which we outlined in the first chapter are, of course, based on the assumption that the tests do measure native capacity. This is essentially the position taken by Terman in his article already referred to, (11) by Yoakum and Yerkes in their book on the Army tests, (12) and by Brigham in his elaborate analysis of the army statistics. (13) A more recent work does not differ essentially from this point of view. (14) Brigham says; "We may assume that we are measuring native capacity." (15) This assumption he believes is justified by the high correlation existing between schooling and intelligence which he interprets as due to the elimination process going on in the schools, through which the intelligent survive to the upper grades while the less intelligent drop out. This fact might, perhaps, be more reasonably interpreted as due to the tendency for those with more schooling to do better on the tests. Either hypothesis will explain facts altho the latter might seem the more reasonable. (16)

In the following chapter we shall discuss more fully, and in a more general way, the possible influence of cultural forces and the psychosocial environment on behavior, attempting to show the difficulty of measuring any such thing as native capacity apart from experience. Here we wish simply to note some of the influences which might have affected the Army scores, making them more measures of schooling and education than of native ability.

Binet, himself, called the attention to the need for different norms for the rich and poor school children of Paris. Professor Colvin emphasized the point that conclusions as to native differences between individuals can be drawn only when back ground and experiences of those tested can be shown to be the same. (17) Referring to the Army tests, Professor Dearborn indicates the possibility of environmental influences affecting test scores when he says: "This coincidence, if indeed it be such, (reference to the fact that children leave school at about the age when mental growth is supposed to cease for the average person) may however, simply indicate that the tests in question measure chiefly the habits and interests ordinarily acquired in school, which many adults may either, never have learned well, or have forgotten." (18) Professor Hines after reviewing a symposium on the nature of intelligence concludes that, "most psychologists are inclined toward the belief that intelligence is determined more largely by training than by native ability." (19) Miss Arlitt concludes, that "race norms which do not take

11. "Mental Growth and the I. Q., JOUR. ED. PSYCH. Vol. 12, Page 330.

12. ARMY MENTAL TESTS, Page 17.

13. A STUDY OF AMERICAN INTELLIGENCE.

14. Kirkpatrick C. IMMIGRATION AND INTELLIGENCE. Page 14.

15. Op. Cit. Page 100.

16. Bagley, W. C. "Army Tests and the Pro-Nordic Propaganda" ED. REV. Vol. 67, Page 181.

17. "Principles Underlying the Use and Construction of Intelligence Tests," 2nd YEAR BK. NATL. SOC. FOR STUDY OF ED. Page 21.

18. "Intelligence Quotients of Adults." JOURNAL OF ED. RES. Vol. 6. Page 307.

19. MEASURING INTELLIGENCE, Page 362.

the social status factor into account are apt to be to that extent invalid." (20)

A number of studies have been made to determine the possible effects of environmental influences on the Army scores or on tests similar to the Army tests. The common position of the mental testers is that training and practice increase individual differences and hence that the tests are measuring native capacity. H. B. Reed finds, however that if gain through practice is measured relatively instead of absolutely, practice decreases differences rather than increasing them. (21) Dunlap and Snyder find also, that differences are materially decreased through repeated retests on tests like the Army Alpha. They seem to believe that the novelty of the tasks had much to do with the original low scores. (22) O. Bishop has studied the problem in still greater detail. Using the Otis Tests, he finds that experience and training affect markedly the results of these tests. Among other conclusions he says: "In fact, the common practice of calling these tests 'intelligence tests' will, in many cases, involve more serious error if, by 'intelligence' is meant native ability to learn under standard conditions and opportunities." (23)

Lippmann, whose articles in the *New Republic* popularised the discussion of the intelligence tests, has attempted to show the possible influence of educational differences between the different states on the average scores made by the recruits from the several states on Army Alpha. (24) He shows that a high correlation exists between median Alpha scores of the different states and the educational conditions in these states as measured by the Ayres Index of education. There is also a high correlation between educational status, per capita income and army scores. These facts may be explained as due to the fact that more intelligent populations are able to increase their per capita incomes, and appreciate the value of a good school system. A more reasonable explanation would attribute low intelligence at least in part, to poor school systems and low incomes with their lower standard of living.

A more complete study is that of H. B. Alexander. (25) He compared the rank order of the states in median Alpha scores with their rank order in: (1) distribution of distinguished persons; (2) per cent of foreign born in total white population; (3) density of population; (4) economic conditions as measured by degree of home ownership, tenantry and hired men's wages; and (5) educational efficiency as measured by degree of literacy and educational improvement. Between the rank of order of the states on the Alpha tests and these criteria of social and economic efficiency the author found positive correlations

20. "One The Need for Caution in the Establishment of Race Norms," JOURNAL OF APPLIED PSYCHOLOGY, 1921, Page 183.

21. "Effect of Training on Individual Differences", JOURNAL OF EXPERIMENTAL PSYCHOLOGY, June 1924, Page 186. See also Kincaid, Margaret, "Individual Differences in Learning", PSYCHOLOGICAL RESEARCH, Vol. 32, Pages 34-53. The writer concludes: . . . "differences generally decrease with practice."

22. "Influence of Practice on Army Alpha Scores", JOURNAL OF EXPERIMENTAL PSYCHOLOGY, Vol. 3, Pages 396-400

23. "What do Intelligence Tests Measure" JOURNAL OF EDUCATIONAL RESEARCH, Jan. 1924, Page 29.

24. "A Defense of Education", CENTURY, 1923, Vol. 106, Pages 96-106.

25. "A Comparison of the Ranks of the American States in Army Alpha and Social Economic Status". SCHOOL AND SOCIETY, Vol. 16, Pages 389-91.

ranging from .62 to .88. The probable error never exceeded .07. Between the Ayres index and Alpha scores the correlation was .72, P.E. .05. From this study the author concludes: (1) Population centered in cities is, on the whole, more intelligent than the population of rural districts; (2) States with more favorable economic conditions rank higher intelligence; (3) States with the best educational advantages tend to average higher in intelligence." The author ventures the opinion that, while the results may be interpreted in two ways, "in so far as it applies to such large groups as the American states, Army Alpha appears as a test of what has been learned rather than what can be learned." (26)

The influence of educational opportunities and other environmental factors on test scores has been the object of a number of other studies. The following four are typical:

(1) By the use of the method of partial correlation, Burt finds that native intelligence contributes about 35%, general experience and informal education 11%, and schooling 54% to scores on the Binet-Simon tests. (27)

(2) D. W. Willard has published the results of an attempt to measure native and acquired ability by the Terman group test of mental ability. He reaches the conclusion that "about half the growth measured by the tests for all grade groups appeared to be due to the development of native capacity, and about half to training." (28)

(3) Wendell White measured the effects of training in silent reading on scores made on Otis group tests. He concluded that such scores vary widely according to the kind of training and instruction that the children receive. (29)

(4) Professor Bagley has continued and extended the method used by Alexander in one of the studies described above. He has compared the school efficiency of twenty six states, as measured by a modified index of education, with seven other criteria of social and economic efficiency; (1) A median of six intelligence and efficiency ratings; (2) adult white literacy; (3) per cent of A and B Alpha scores; (4) median Alpha scores; (5) **Literary Digest** circulation; (6) birthplace of present day leaders; (7) average production efficiency. If we allow for one discrepancy, (30) the correlation between intelligence and efficiency ratings today and school ratings of a generation ago will go above .90. Professor Bagley concludes: "Rightly interpreted, the results of the tests speak with compelling force, not for educational restriction, but for educational expansion. They tell us convincingly that the level of trained and informed intelligence in the nation as a whole could be substantially raised within a generation." (31)

26. Op. cit. Page 392.

27. Burt, Cyril, **MENTAL AND SCHOLASTIC TESTS**, Page 20.

28. "Native and Acquired Mental Ability as Measured by the Terman Group Test". **SCH. AND SOC.** Vol. 10, Pages 750-756.

29. "Effect of Training in Silent Reading on Otis Scores". **JOUR.**

ED. ADM. AND SUPERVISION. Mar. 1928.

30. Op. cit. Pages 913.

31. Op. cit. Page 216.

This evidence would seem to indicate that group tests of the Army Alpha type are far from being the infallible measures of native capacity which their early advocates claimed them to be.(32). One other point is significant in this connection. Before experiments of any kind can have scientific value they must have been performed under standard and controlled conditions. How near the army tests came to this ideal of standard conditions can be judged by the following quotation from Hines book **Measuring Intelligence**. Professor Hines was, himself, a psychological examiner during the war and speaks from experience. He says: "As indicated above, no two examiners administered the tests in the same way. No two assistant examiners felt the same responsibility in helping to preserve order, supply new pencils, or cause the men to refrain from copying. The examinations were seldom given without interruption or disturbance. Usually no attempt was made to locate men with poor hearing or poor eyesight in order to give them an equal chance to make a good showing. Some men came to the examination room coached in what they were expected to do; others came in fear that they would be given a 'brain test' they might not be able to pass; still others came determined not to make a good showing in hope that they might be discharged from the army. These and many other factors affected performance."(33)

The Social Importance of Intelligence.

We come now to consider the third assumption of the determinists; that the abilities measured by the tests are of the greatest importance in determining the degree of success which the individual is capable of achieving in life, or his usefulness to society. The mental testers do not claim to measure all the phases of behavior. They do claim, however, to measure "general intelligence." This raises the question as to the nature of "general intelligence." As indicated previously, few satisfactory answers have been found to this question. (34) Many psychologists admit the difficulty of defining it.(35) About all that can be said is that the tests measure those particular abilities which are necessary to solve problems, puzzles or other tasks of which the tests are composed.(36) Collectively these are assumed to make up what most people call intelligence. As one writer puts it: "If we simply state that the test divisions test what is evident, and nothing more, the atmosphere surrounding them will be greatly clarified.(37) From what has been said about the effects of school training and education on test scores, it seems evident that the tests are measuring pretty much the same abilities as are required for success

32. Professor Kornhauser says: ("Intelligence Test Ratings of Occupational Groups", AM. EC. REV. Vol. 15, Suppl. Pages 110-122). "Differences in test scores between occupational groups are necessarily a result of the influences of particular kinds of work in preparing persons for the paper and pencil performances of intelligence tests".

33. Op. Cit. Pages 68-69.

34. See Chap. I.

35. Whipple, Guy M. Op. cit. Pages 562.

36. On Page 573 of Memoir XV of the Natl. Acad. we find intelligence defined as "the ability which manifests itself quantitatively in a set of consistent scores in all types of examinations on which our data are based."

37. Hines, H. C. **MEASURING INTELLIGENCE**, Page 49.

is acquiring and retaining the information and habits which are taught in our schools.(38) No one would deny that the basis for these abilities is inherent, and few could deny that they are not also markedly influenced by differences in opportunity to learn.

Are these abilities, then, the only traits, or even the most important traits in a population which will determine that people's cultural and social progress? Professor Traubue warns us against identifying intelligence too closely with school success.(39) Thorndike, also, suggests that to assume, when we have ascertained a persons "I. Q." on the basis of a standard test, that we have measured some general power which resides in him and determines his ability in every variety of intellectual task in its entirety, is to fly in the face of all that is known about the organization of the intellect. After commenting on the fact that intelligence test ability will prophesy rather closely the success which a pupil is likely to have in a school room Thorndike says: "It will prophesy less accurately how well he will respond in thinking about a machine he tends, crops that he grows, merchandise that he buys and sells, and other concrete realities that he encounters in shop, laboratory, field or office. It may prophesy still less accurately how he will respond in thinking about people and their passions and responding to these."(40) Professor Davidson reviews the evidence for the social importance of the traits measured by the army tests and concludes that there is little evidence for the assumption that these abilities are of overwhelming importance in determining either financial or social success.(41) A sociologist has put the matter in this way: "The inborn capacity to acquire the information necessary to perform the tests may be valuable in picking out mental deficiency, but certainly not in making fine gradations of mental ability.....While the sociologists welcome all efforts to find the limits set by heredity to environmental influences or training, and also all efforts to classify the population according to native ability or social adaptivity, there is not sufficient proof that people having highest scores are the real superiors among mankind and the only ones fitted for carrying on the improvement of our civilization."(42)

Conclusion

From our survey of the assumptions on which the determinists rest their opinion we can easily see that there is little reason for becoming alarmed over their conclusions. The average mental age of Americans does not prove that we are a nation of morons, and as universal education is extended we have every reason to believe that average intelligence will increase. As we have attempted to show, the tests, particularly those of the army type, are so much influenced by differences in education, home environment, and general social background that they show little about the native capacities of individuals

38. Thorndike, E. L. "symposium on intelligence tests." JOURNAL OF EDUCATIONAL PSYCHOLOGY, Vol. 12, Page 124.

39. "Pitfalls in the Administrative Use of Tests". JOURNAL OF EDUCATIONAL RESEARCH, Vol. 6, Pages 1-11

40. Thorndike, E. L. Op. cit. Page 124.

41. Op. Cit. Page 187.

42. Thompson, Warren H. "Eugenics as Viewed by a Sociologist", PROCEEDINGS OF THE AMERICAN SOCIOLOGICAL SOCIETY. 1923, Page 71.

or groups differing widely in such background and environment. Finally we have seen that the importance of these qualities which the psychologists have called "intelligence" is only phyothetical. Conclusions, then, that the differences in mental testing ability between individuals or groups justify the exclusion of some individuals or groups from a share in our own common culture and civilization, or from access to our shores; that the low level of intelligence of the people at large makes of democracy a farce; and finally that education is helpless in the face of native incapacity are certainly very questionable. They may be true but the intelligence test results certainly do not prove them.

Chapter III.

CULTURE AND THE PSYCHO-SOCIAL ENVIRONMENT

The Measurement of Native Intelligence

We have discussed in the second chapter some of the outside influences which undoubtedly affected the scores on the army tests, making them more measures of schooling and educational opportunity than of innate ability. In this chapter we wish to discuss in a more general way the possibility of measuring innate ability or capacity unaffected by environmental influences. The whole case of the writers whose views we described in our first chapter rests on the assumption that the tests measure native ability more than anything else. If this assumption is not true their case would seem doubtful. We shall try to show in this chapter that individual behavior under specialized conditions like those presented by the mental tests is by no means determined by heredity to the extent that some have believed it to be.

The conclusion that individual differences in scores on mental tests are due to innate differences in capacity rests on the assumption that the kinds of responses required on the tests are little affected by differences in experience, or otherwise, that equal opportunities have been afforded to all to become familiar with the test materials. Professor Colvin in his discussion on the construction and use of tests says that they measure innate ability on three assumptions: (1) that the previous experience of all tested has been such as to allow them equal opportunities to familiarize themselves with the test materials. (2) that the previous interests of all the subjects have been about common so that they have been led to acquire equal familiarity with the test materials: (3) that the desire of all to excel on the tests have been about common. (b) These assumptions, Professor Colvin seems to believe, are, under ordinary circumstances, approximately true. (3) It will be our purpose to question the possibility of fulfilling these conditions.

The Inherent Basis of Behavior

There has been an increasing tendency on the part of many students in the fields of psychology, social psychology and cultural anthropology to discount the importance of the biological factor in

1. Colvin S. S., "The Construction and Use of Intelligence Tests", NATL. SOC. FOR THE STUDY OF ED. 21ST. YR. BK. Pages 19-24.

explanation of human behavior. This tendency has grown up with the increasing popularity of "behaviorism" in psychology, and the recognition of the importance of culture as a conditioning factor in determining behavior by the sociologists and anthropologists.

By these writers the inherent basis of behavior is not looked upon as a group of definitely pre-organized complex responses, as perhaps McDougal would maintain, but as made up of a large number of rather indefinite impulses, reflexes or coordinations. These are simple connections in the nervous systems, which, as soon as they begin to function in response to stimuli, are connected up, conditioned to use the psychological term, or become simple habits which later form the basis for more complex habits. This position has been borne out by Watson, for example. His studies of 1,000 human infants have convinced him that what we ordinarily call instincts are not inherited at all but are acquired habits.(2) The particular kind of connections which are made depend to a large extent on early experience. Once made they are easily repeated, and each time repeated they become more fixed and permanent until they become hard and fast habits. So permanent and invariable do they become, that many forget entirely their acquired nature and begin to call them inborn and instinctive. Complex behavior is a superstructure erected on a basis of these inherited simple responses. Thus Professor Bernard says: "There are probably hundreds or even thousands of these inherited mechanisms mainly overlooked by the casual observer because they do not function as independent units in adjustment processes but rather as constituent elements in larger habit complexes in response to environmental pressures." (3) The basis for that kind of behavior which we call intelligence is, then, these inherited mechanisms or connections, and the development of intelligence depends on the way in which these inborn connections are conditioned or connected up. Bagley says in connection with this point: "Mentality is not a structure like nose or eye color, but a function, and is not even the immediate function of a structure, but one that is derived from a number of intermediate functions which ultimately rest on some structure." (4) It should be obvious then that the mental makeup of the individual will be determined to a large degree by these earlier connections or habits, and that his reaction to new stimuli will be in terms of habits already acquired in response to previous situations. Unless it could be shown that the experiences of two individuals had been alike it surely would be impossible to prove that differences in reaction to a particular situation were due to inherent differences in nature. The complexity of stimuli which surround the human individual would certainly make it very difficult to find any two persons, even members of the same family, who could truly be said to have had the same environment. We shall develop this point further in the next section.

Culture and the Psycho-social Environment

Man is not, like the animals, surrounded by a static and unchanging environment. He lives in a world, not only of things and objects,

2. PSYCHOLOGY FROM THE STANDPOINT OF THE BEHAVIORIST.
Ch. VII: See also his BEHAVIORISM.

3. Bernard L. L. INSTINCT. Page 522.

4. "Educational Determinism", SCH. & SOC. Vol. XV. Page 323.

but in a world of ideas, beliefs, and attitudes acquired from contact with others more or less like himself. It is to stimuli coming from this world which the individual primarily responds, from the time that he is first dropped into it by birth, until he is removed from it by death. While he responds to stimuli coming from the world of matter, the physical environment, yet these stimuli come to have a meaning to him through the interpretations put on them by the group in which he lives. Through simple reaction on the part of other individuals in response to activities of his own, then through vocal methods of communication and, finally, through the written word, the individual becomes a part of that immensely complex organization which we call the psych-social environment. In this environment the child takes on the whole culture pattern of his group. Through the culture pattern all the physical realities take on a meaning. Language is acquired; control over the technology of civilization is learned. Attitudes, beliefs and superstitions are acquired in response to customs, traditions, institutions and conventions. Life takes on a meaning as the individual adopts the group's culture, and his responses to the new stimuli will inevitably be in terms of the pattern dictated by group culture. His culture becomes second nature to him, a matter of habit. Yet none of it is inborn, none of it is passed along through heredity.

What the individual is, then, by nature, we can know little. His nature is overlaid by an immense mass of habits acquired in his responses to cultural stimuli. Natively he is a bundle of reaction tendencies, but these tendencies can express themselves only through the medium of culture. How hopeless, then, becomes the task of disentangling that which is inborn from that which is acquired. The psycho-social environment shapes individual behavior and to it the individual is always seeking adjustment. Professor Beranrd describes it thus: "This is the most complex and insistent of all environments, and it grows in complexity as man's intelligence grows and as his powers of adjusting to it increase. Only he is cognizant of traditions and customs, of conventions and suggestions. Only he builds institutions and inherits them from the past. Only he multiplies knowledge and is dominated through his understanding by its abstract principles." (6)

This, then, is the kind of environment to which man is constantly adapting himself. The direction, and degree to which his capacities and abilities will develop will depend largely on the degree to which this environment will force their exercise. Human nature will largely be determined by it, and the way in which those complex mental processes which we call "intelligence" develop will largely be dictated by the patterns of behavior set by the culture of the group. Thus Watson says: "What the world calls human nature is a structure of behavior built upon original nature we possess at birth—or a way of behaving after we have been dipped into the stream of human activity, and have been moulded by what Graham Wallas calls the 'social heritage.' " (7) The hereditary basis for behavior seems to be much the same for all individuals and all peoples, but differences arise due to their expo-

5. For discussion of the Psycho-social environment see Bernard's paper in PUBLICATIONS OF AM. SOC. SOC. 1921. Pages 95-109

6. INSTINCT, Page 92.

7. Article in N. Y. Times, "Interview With Watson". Jan. 4, 1925.

sure to different cultures, or their unequal exposure to the same culture. Thus Professor Goldenweiser says: "The psychic unity of mankind lies, first of all in the realm of the original nature of man. For this reason man everywhere, at all times and at all cultural stages is so much the same. This is psychic unity".(8) We must seek for the differences between individuals and groups, then, at least partly in the differences in their culture or their psycho-social environment. Thus Ellwood says: "The human child is born into a relatively definite social organization with a definite culture and definite forms of social control. The groups organization as a rule establishes the way the individual must act if he is to gratify his own inherent desires."(9) Let us now consider specifically some of the cultural influences which may act as conditioning factors in explaining individual differences in test scores.

1. Language

In its application to the problem in hand here perhaps one of the most important of these influences is language. Abstract thinking which by some of the psychologists, seems to be considered the most important of the component parts of intelligence, could not have developed far without language. Language symbolism is probably the chief content of those mental processes which we call thinking. Investigators have shown that thinking is conversational in form even when it is most abstract. Watson for example contends that we do most of our thinking with our vocal cords. Differences in kind of language, that is in its richness of symbolism, its vocabulary of words representing abstract concepts, are likely to affect seriously the degree of success attained on mental tests by persons with different language habits. This would be true not only of individuals who come from groups with different languages, that is, from different national groups, but it would also be true of persons coming from different social classes or ranks, and even from different families. The research of philologists tell us that family groups and neighborhood groups differ markedly in language habit, vocabulary, peculiarities of pronunciation etc.

Some inductive investigations have been made to determine the importance of the language factor in affecting test scores. F. Smith examined groups of school children in Wales, some of them speaking only English, others speaking both Welsh and English.(10) The results of the tests indicated a clear superiority of the mono-glots over the bi-linguals. Examination of university students speaking both languages seemed to reveal that this superiority continued throughout the university career. The author attributed the superiority of the children speaking only one language to a "mental confusion" arising from "the use of two languages before the power of using one language had been effectively acquired." An earlier study by Saer reports similar results.(11) Rudolph Pintner has emphasized the importance of the language factor. He says: "It is inconceivable that children living

8. A. A. Goldenweiser, "Psychology and Culture", PROC. AM. SOC. SOC. 1924. Vol. 19.

9. THE PSYCHOLOGY OF HUMAN SOCIETY, Page 296.

10. Smith F. "Bilingualism and Mental Development", BRIT. JOURNAL OF PSYCH., Vol. XIII, Page 278.

11. Saer D. J., BRIT. JOURNAL OF PSYCH., July 1923.

in an English speaking environment, hearing, speaking and reading nothing but English, should not have a distinct advantage in tests requiring the finding of opposites, the hunting for an analogy, the filling of an uncompleted sentence, and the like, as compared with children who hear a foreign language at home and, in many cases, are required to communicate in a foreign language to some people in their environment." (12) After making two investigations of the problem Pintner concludes; ".....when classified according to mental age, these children who hear foreign language in their homes may suffer a serious handicap when tested only by a revision of the Binet scale." Colvin and Allen also studied the same problem comparing the performance of Italian and American Children on a variety of tests. They conclude; "From the evidence now in our possession we can reasonably conclude that linguistic ability is an important factor in the score obtained by an individual in an intelligence test that is based largely on words and their uses. A study by Young gets results contradictory of these mentioned. (13) After surveying the evidence from a number of such studies Miss Mead concludes that ".....test scores are affected, to a degree not yet determined, by social statues and by limited disabilities." (14)

2. Culture Traits

Not only will language differences affect responses in intelligence tests, but differences in familiarity with the materials of the test will also affect responses. Knowledge of culture traits is gained largely in the environment of those intimate groups which the sociologist has called primary groups, the family, neighborhood and playgroup. In these groups the individual is introduced to the material things of his civilization. But they do not come to him as mere "things." They come surrounded by beliefs, ideas and attitudes. That is, they have "meaning." To use Thomas' phrase, they are social values, and the group determines the value which is put on them, or the way in which they must be evaluated by the individual. A pencil to a Central African might mean a stick, it is just an object. To an American it means something to write with. The thing itself is the same to both, but the meaning of it is entirely different, and the reaction to the pencil would probably be entirely different between the two. The difference in the reaction we can, of course, attribute to the difference in experience or environment of the two individuals. It is easy enough to see that such wide differences in experiences as those between an African native and an American would be the cause of different responses to exactly the same stimuli. This would be admittedly true between any individuals differing widely in social environment and hence in experience, such as individuals from an immigrant group in America and native Americans. But would it not also be true between individuals who had apparently the same environment. We interpret new experience in terms of old. Early

12. Pintner R. "Comparison of American and Foreign Children on Intelligence Tests". JOURNAL OF EDUCATIONAL PSYCHOLOGY, May 1923. Also Pintner and Keller, "Intelligence Test of Foreign Children". JOURNAL OF EDUCATIONAL PSYCHOLOGY, 1922, Page 214.

13. "Intelligence Tests of Certain Immigrant Groups", SCIENTIFIC MONTHLY. Vol. 16, Pages 267-274.

14. "The Methodology of Racial Testing", AMERICAN JOURNAL OF SOCIOLOGY, March 1926.

experience may cause the development of two individuals to follow divergent courses, and altho we surround them with the same material things, since they interpret each thing in light of previous experience, their response to the same stimuli would be entirely different. These differences might, and probably would be due in part to differences in native ability, but they certainly would also be due in a large measure to differences in experience. The mere surrounding of individuals with the same physical things, is not an equalization of the environmental factor. Experience is not held constant, and individuals differences cannot be explained entirely in terms of heredity. This would certainly be true when one compares persons from different social strata, or those from different racial and national groups. The mental tests are made up out of materials drawn from our surrounding culture. Most of them require pencil and paper responses. Many of them require familiarity with words. Some of them include pictures, figures, and other objects. All of these objects come clothed with a meaning for each individual, and his response to it will differ from the response of another individual, partly because the two are not natively alike, and partly because the background of interpretation is not the same for both.

3. Other Influences.

As we noted in the earlier part of the chapter, one of the assumptions underlying the contention that intelligence tests measure pure native capacity was that all subjects had equal desire to perform creditably, and hence could extend themselves to the limit of their ability. Whether or not all subjects would have such desire would depend largely on the incentive to achievement which would appeal to the subjects. The existence of such incentives would depend on the complex of traditions, ideals and standards which had surrounded the child, and to which he had become accustomed to respond. Thus the existence of family traditions of academic achievement, culture and refinement would shape entirely different attitudes than those which would develop in the absence of such traditions. As we pointed out in the second chapter (15) attitudes of mind played an important part in determining whether or not the subject would extend himself to the limit of his ability. There is little doubt but that the existence of a self confidence, a confidence in the group, has quite a bit to do with the success of individuals who belong to so called eminent families, the Edwards family for example. On the other hand a tradition of inferiority in a family will often keep individuals from achieving goals which might lie well within their power. The individual's concept of his own role in the group, his concept of "I", as Cooley puts it, (16) determines his behavior in trying to behave in such ways as will fill that conception of himself. It is this conception which will determine the incentives which appeal.

SUMMARY.

A prominent European Sociologist once said: (17) "It is not the individual who thinks, it is the group". While we would not adopt

15. See page,

16. HUMAN NATURE AND THE SOCIAL ORDER, Chap. VI.

17. Gumpłowicz OUTLINES OF SOCIOLOGY, Part IV. Quoted by Ross FOUNDATIONS OF SOCIOLOGY Page 118.

the extreme position of this writer, it should be obvious that an individual's behavior in any situation will be conditioned and largely determined by his culture contacts and is to be explained in terms of his culture. The type of intelligence which is developed will depend largely on the kind of adjustments the individual has been called to make in his cultural environment, and the circumstances in which his mental processes have been called on to function. It is admittedly true that individuals will differ in their innate capacity to adjust themselves to a new situation, but we must remember that the situation is always a cultural one, and the materials of adaptation are also cultural. They do not come from within, but from without, from culture itself. As Professor Goldenweiser says: "The content of any particular psyche,..... comes from culture. No individual or group ever originate their own culture, . . . it comes from without in a process of education." (18)

We have attempted to show now that all behavior is social behavior, and culturally conditioned. Individual responses, then, in a specialized situation are always a complex of the native and the cultural and there is no way by which they can be separated. It becomes extremely difficult, in light of this fact, to see how anything like native capacity, unadulterated by the cultural and environmental can be measured by intelligence tests.

18. Goldenweiser A. A. "Psychology and Culture",. PROC. AM. SOCIAL SOCIETY, 1924, Vol. 19.

Chapter IV.

SOCIAL PROGRESS AND INDIVIDUAL CAPACITY.

Vertical and Horizontal Intelligence.

As we have seen in our third chapter the quality, or qualities, called "intelligence" which the intelligence tests are said to measure are a complex of native capacities to learn plus information, knowledge and acquired habits. These **native** capacities, while they cannot be measured in their "pure" form, undoubtedly exist, and exist in varying quantities in different individuals. They express themselves in forms of responses which are functions of structures of the nervous system. These responses, except in the new born infant, are, as we have tried to show, conditioned and modified by experience, but there is in them a certain part which is native, dependent on the structures of the nervous system, just as keenness of eyesight is probably in part due to the nature of the structures of the eye and the nervous tissue. The structures of the nervous system differ between different individuals just as do any other physical structures. There is therefore, a physical basis for individual differences in capacity to learn, or to make such responses as are called "intelligent". Professor Bagley conveniently characterizes this kind of "intelligence" as "vertical", and describes it thus: "Whatever mental development may be due exclusively to the maturation of the structures and functions presumably underlying general intelligence I termed, for convenience, vertical growth." (1)

But there is a growth of another kind which is not limited so closely by physical growth. This is the kind of mental development which depends on the acquisition of knowledge, of access to the social heritage and contact with the cultural environment. The growth of individual intelligence depends, certainly, on this factor as much as it does on the growth of the nervous structures. As professor Colvin has said, the brightest European child brought up by a tribe of African Pygmies would probably be classed as feeble-minded in a western civilization. That part of intelligence, the growth of which depends on knowledge and information, we may call, with Professor Bagley, "horizontal intelligence". (3) It is the growth which we believe to be most important in determining the intelligence and efficiency with which a group orders its civilization.

1. "Professor Terman's Determinism". JOURNAL OF EDUCATIONAL RESEARCH. Vol. 6, Page 371.

3. Ibid. Page 371.

The Advance of Culture and Intelligence.

While the development of intelligence, as far as the individual is concerned, is probably limited to some degree by the growth of his "vertical" intelligence, this is not at all true of the group as a whole. And if we turn our attention solely to trying to raise the level of "vertical" capacity, we are likely to find our general level of social efficiency declining, since we are neglecting to develop that kind of intelligence which comes only with education and enlightenment. As far as we know, the advance of culture, and the increasing perfection of man's control over nature has not come about though any improvement of his organic capacities. Judging from the skeletal remains of prehistoric man there is no physical evidence of the development of man's brain or other nervous structure during the past 20,000 years. There is no evidence to prove that he is natively any more intelligent than he was then. The advance of civilization cannot be accounted for in terms of any biological changes which have occurred since that time.

Culture is not to be explained in the terms of the organic. Its cause is to be found inside of itself. Culture produces culture, and new inventions grow out of old ones. Of course the medium through which they pass is the human mind, but inventions do not spring spontaneously out of the mind. They come from the psycho-social environment. The growth of culture and the cumulation of the social heritage has been a slow process of growth, a learning process, in which each stage has been built up on the previous stage. None of it has been passed along in the germ plasm. Each generation has had to learn it all anew, but the process, while it has had its setbacks, has been one of steady growth and increasing control. If the development of civilization had been one of constantly increasing native ability on the part of those who have borne it, we would expect to see great cultural advances correlated with biological variations and mutations producing large numbers of superior intellects at the same time. Instead we find these great cultural advances correlated with cultural changes like the invention of writing, the smelting of iron, the invention of the printing press, the development of transportation and communication, the industrial revolution and others. As Ogburn points out in his "**Social Change**," if we once have given a level of biological development, culture can continue to grow and develop indefinitely. (4) This level of biological development has been reached ages ago when man's superior brain with its large cortical area and his upright position with its free hands was evolved.

The advance of civilization in the future, then, depends not on improving the average of native abilities, for that probably can be raised little, but on raising the general level of abilities through the widest possible dissemination of information and enlightenment. That is, the possibilities of promoting a higher cultural level, lie inside of culture itself and must not be sought for in the field of biology.

Culture and Social Leadership.

One of the main points of the determinists is the idea that social advance depends on the location of those with superior ability, that is

4. Ogburn W. F. **SOCIAL CHANGE**, Chap. II.

with comparatively advanced growth of "vertical intelligence", and their training for leadership. This may be done even at the expense of neglecting the masses.

We believe this theory overlooks the fact that leadership depends for development on the general level of culture. That is, leadership is, to a large degree, socially selected. While it is undoubtedly true that leadership has its biological side, as Galton and his followers have emphasized, yet it is also true that the social situation, the culture pattern existing in the group, determines what ideas and inventions will be accepted or become social valuable. In this sense leaders are socially selected. They grow out of the social and cultural situation of the times. This accounts for the fact that men of unusual ability are likely to appear all about the same time. They are made possible by their times. An Aristotle in the stone age would have been forgotten, but the Greece of Alexander's day helped make his name immortal. In history, the Age of Pericles for Athens, the reign of Augustus for Rome, the Reformation and the Renaissance for Europe after the Middle Ages, are noted for the seeming spontaneous development of "great men". While there is no denying the fact that as individuals these men stand out among their contemporaries, the times made possible their appearance.

Professor Ogburn, in his recent book, has shown the immense importance of the level of culture at a particular period in developing latent leadership, in the form of inventors and innovators. While admitting that invention is the product of superior capacity, Professor Ogburn points out that only those inventions are made which the prevailing level of culture will support, and once a particular level is reached certain inventions almost inevitably appear (5) Wissler brings out the same point in his discussion of the influence of the culture pattern. (6) Only those new traits will be accepted that will fit into the setting already existent. Thus the American Indian adopted the white man's rifle because it fitted well into the complex of traits which made up the culture pattern of the Plains. But he was much slower to adopt the intangible traits of the white man's civilization, his religion, his form of the family for example because they disturbed too widely the whole culture setting.

If the social situation is as important as we have attempted to show that it is, we can see that the direction which social change takes is not to be found in the individual leader himself, but in the complex of beliefs, values, standards and ideals existing in the community. While it is necessary, then, to exploit to the limit all methods of detecting superior native ability, the emphasis in any theory of social progress must be on the creation of that wide intelligence among the masses that comes only with wide spread enlightenment and education. The development of the average level of "horizontal" intelligence does not depend on changing the average of native capacity, but it does depend on the spread of information among the masses, and the access to cultural influences for the widest possible numbers. Unless there is this wide spread culture among the masses, the development of leader-

4. Ogburn W. F. *SOCIAL CHANGE*, Chap. II.

5. *Op. Cit.* Chap. II.

6. Wissler Clark, *MAN AND CULTURE*, Chap. VII.

ship will be hampered, no matter how much innate capacity may exist within the group.

Odin, a French writer, and, later, Lester F. Ward, the pioneer among American Sociologists, have emphasized the importance of the social and cultural environment in transforming latent possibilities into actual achievement.(7) These writers have shown the tremendous importance for the development of leadership of such environmental features as climate and geographical environment, density of population, access to centers of art and culture, development of educational institutions, and religious and moral influences. The secret of achievement, according to these authors, lies in the presence or absence of social interstimulation. More recently, and with increasing scientific accuracy, the effect of social stimulation on the development of genius, and outstanding ability, has been studied by G. R. Davies.(8) His conclusions are much like those of Ward. Cattell's study of eminent scientists supports the same view.(9) Cattell finds that American scientists are many times more likely to be born in the eastern part of the United States than in the southern part; many times more likely to come from states with large cities than from those predominantly rural. He finds, for example, that the probability of a youth born in Massachusetts becoming a scientist was fifty times as great as that of a youth born in Alabama or Georgia. It would be hard to believe that selective influences working on the migration to these areas had produced in New England a stock fifty times more fruitful of scientists than the southern stock. A much more plausible explanation would find the difference due to the superior social stimulation of the towns, factories, small farms, strong churches, schools, colleges, libraries, and newspapers of New England, influences which were largely absent in the rural south of a generation ago. When he divided up his group of scientists on the basis of occupation of fathers, Professor Cattell found that the professional classes contributed, in proportion to their numbers, about four times as many scientists as did all the non professional groups. Gault's conclusion, from a study of Professor Cattell's monograph seems to fit the facts: "The isolated life of the farm and the plantation, the mechanic's bench and the desk of the manufacturer and the merchant, are not conducive to intellectual leadership in science because their social environment does not supply such stimulation — at least not in sufficient measure".(10) A recent study of the type of birthplace and occupations of fathers of men whose life sketches appear in **Who's Who in America** reports results much like those of the Cattell study.(11) The following quotation of the abstract of the article describes the study: "Replies from 18,400 persons sketched in the current edition of **Who's Who In America 1922-1923** indicate that 24.9% were born on farms, 23.5% in villages and towns, 25.8% in small cities, 20.6% in large cities, 4.1% in the suburbs. In proportion to the population at the 1870 census cities contributed nearly six times as many as did farms; villages, nine times; suburbs, eleven times. The fathers of 70%

7. APPLIED SOCIOLOGY, Part II.

8. SOCIAL ENVIRONMENT.

9. AMERICAN MEN OF SCIENCE, Science Press, 1906.

10. Gault, R. H. SOCIAL PSYCHOLOGY, Page 227.

11. Visher, Stephen S., "A STUDY OF THE TYPE OF THE PLACE OF BIRTH AND OF THE OCCUPATION OF FATHERS OF THE SUBJECTS OF SKETCHES IN WHO'S WHO IN AMERICA." AM. JOURNAL OF SOCIOLOGY 1925, Vol. 30, Pages 551-557.

of these persons belonged to the professional or business classes, 34.3% and 35%, respectively; 23.4% were farmers, 6.3% were skilled or semi-skilled laborers, and only .04% were unskilled. In proportion to the population at the 1870 census, these classes ranked in this order in the production of notables and had a value of 1400, 600, 70, 30, and 1 respectively. Clergymen fathered 2400 times as many notables as did the unskilled laborers in proportion to numbers." From his study the author draws the following conclusions: "This study does not indicate whether nature (environment) or nature (heredity) is the more important nor does it adequately describe the conditions today, when the leaders of the next generations are being born. It does however, clearly indicate that a large share of the notables of today have come from certain relatively minor elements in the population. More than one third have come from the professional classes which comprised one forty-fifth of the population in 1870. The five per cent of the men of America classed as business men, contributed 34%. Thus 70% of the notables were fathered by 7.5% of the nation's men. In contrast, unskilled laborers fathered almost none of the notables of Who's Who, and although farmers fathered 23.4%, that percentage is about one fourth less than their share in proportion to the population." (12) It is interesting to note, also, that religious denominations differ markedly in their contribution of notables. There were 1250 notables per 10,000 clergymen of the Episcopal faith, while Methodist clergymen fathered only 103 per 10,000. The author suggests that this difference may be due to the fact that a large number of the Methodist clergy are colored, while the Episcopal are not, or it may be due to the superior cultural and educational opportunities in the home of the Episcopal clergymen.

While these studies do not justify any hard and fast conclusions as to the relative importance of heredity or environment in producing leaders, they show, at least, the importance of an advantageous social and cultural environment for transforming potentiality into civilization. When we reflect on the fact that inferences have been drawn as to differences in average capacity between national, racial and occupational groups which admittedly differ widely in such environment, it would seem that such conclusions could hardly be justified.

Intelligence and the Choice of Leadership.

As Professor Bagley points out (13), a democracy chooses its own leaders. In a sense this is true of any system of social or political organization. Even a Mussolini could not retain power without the passive assent of the masses. It is undoubtedly true that groups do not always choose their leaders intelligently, that they are often led astray by the blandishments of the smooth orator, or the cheap politician. They can be awed by arms and force, or soothed by appeal to vanities. But even the tyrant cannot maintain his position except by public will, or through the failure of public will to find some method of getting rid of the oppressor. Whether we like it or not, masses of people decide public policy, carry on war or insist on peace. Kirkpatrick puts it in this way: "Masses of people determine peace or war and participation

12. Ibid. Page 557.

13. "Educational Determinism", SCH. AND SOC. Vol. 15, Feb. 3, 1922.

or non participation in world affairs, whose vital significance or implication they are not likely to appreciate. Since the leaders are chosen, the quality of the leadership depends on the intelligence of the many.... Democracy, in the sense of control by public opinion depends on education and enlightenment and if it is shown that education depends on native intelligence, then this must be taken into account. Is not intelligence required for the critical selection of the sound leadership which is so necessary in a complex world where false steps may spell disaster'.(14) Dr. Kirkpatrick is interested in his study in showing the necessity of proper selection of immigrant stock that the average level of intelligence in the United States be not depressed by the infiltration of poor germ plasm from southern Europe. This is not the point which the writer wishes to emphasize here, since it is his opinion that education and enlightenment is capable of lifting even these supposedly inferior to substantially the same levels as the native stock.

The point to be emphasized is the fact that intelligent choice of leadership depends on the building up of that kind of intelligence among the people at large which is dependent on the wide dissemination of knowledge and education. Probably the average of native capacity can be raised little. Eugenics is a philosophy of despair, but education does not take generations to work. Immunity to propaganda, critical attitudes of mind, dissipation of intolerance and ignorance, and ignorance breeds intolerance, is a matter of enlightenment. The only way to secure intelligent following of intelligent leadership is through the training and development, on the part of the common man, of those native capacities with which he is endowed. This does not mean that everybody has the same ability, but it does mean that those with superior capacity will not have the opportunity of using their natural gifts in the direction of social progress unless there is the capacity, on the part of the masses, to appreciate them.

Other Considerations.

One further point, perhaps, remains to be discussed. Is intelligence the sole characteristic which we must demand of leadership? There can be no doubt but that the development of a civilization depends on increasing knowledge, information and intelligence. The growing complexity of our social and economic organization requires the enlistment of the best minds in its proper direction and control. The day has passed when we can safely depend on amateurs to administer our complex social machinery. The man who could once direct the affairs of a five thousand dollar business cannot direct those of a five million dollar corporation. The statesmanship which could administer the affairs of a small country town is incapable of coping with the problem of a city of millions. Civilization puts a premium on intellectual capacity. Yet, intellect and nothing else, is no guarantee of the willingness of the leader to promote the public welfare. Intelligence may be used for selfish as well as for social purpose. There must also be a sincere desire to do what the intellect conceives as desirable. An aristocracy of brains is no more associated with welfare than is an aristocracy of wealth or birth. In fact, the very isolation to which

leadership condemns the leader may throw him out of sympathy with the masses. He comes to acquire possessions, both material and spiritual. Often these possessions depend on the continuance of things as they are. The leader comes to associate his own interests with the "status quo". The very intelligence with which he is gifted may be used to subvert the best interest of those whom he leads. As Cooley says: "A responsible leadership the spontaneous choice of the group is the only solution to our problem." (15) Benjamin Kidd has made the same point in his book. **The Science of Power.** (16) He emphasizes the idea that it is not only intelligence that will solve the social problem. While intelligence may point the way, it is the mobilization of the emotion of the group behind great moral ideas which will supply the motive force. Unless the leader is capable of stimulating and mobilizing this force, his ideal may never be realized, no matter how well conceived his plan may be.

We have now tried to point out that intelligence of the kind measured by the intelligence tests may not have the importance which has sometimes been attached to it. We have pointed out that social evolution is not dependent so much on the improvement of the qualities of the race as it is the growth of that kind of intelligence which comes with increasing knowledge and information. Social progress is essentially cultural progress and must be explained in terms of culture. We have also tried to demonstrate that the production of intelligent leaders depends, to a large degree, on the stimulus of the psychosocial environment. Our third point was that successful leading implies intelligent followers, and such following comes only with the development of the critical faculties of the masses through enlightenment. Finally, we have pointed out that other qualities, besides native capacity are required of the leader who would promote social advance. These are, desire to promote social welfare, and the ability to arouse the emotional force latent in the group.

15. HUMAN NATURE AND THE SOCIAL ORDER, Page 138.

16. Op. Cit. Page 154.

CHAPTER V.

SOCIAL ORGANIZATION AND INDIVIDUAL INTELLIGENCE

Individual Intelligence and Public Opinion

Professor Graham Wallas, in his **Great Society**, points out two fallacies in speaking or writing about the relation of the individual to the group.⁽¹⁾ One of these is the mistake of thinking of the group as a kind of super-organism which thinks and wills apart from the individuals which make it up. The social mind seems to be conceived of as having an existence separate from the minds of the individuals who compose it. This is the old organic fallacy of Spencer and other early writers in the field of Sociology. The other mistake, is to conceive group will, public opinion, or whatever we want to call it, as a sum or average of the individual wills or opinions. According to this idea, public opinion can be no more intelligent than the average of the intelligence of all those who compose the public. This is the fallacy into which many of those fall, who have attempted to draw conclusions about the average intelligence of the nation, based on what the intelligence tests are supposed to have revealed concerning the average native capacity of the people as a whole. These writers fear for civilization and democracy since they find that the average of individual capacities is so low, and since there are so few with really superior intellects. Such an interpretation implies that social efficiency and social intelligence, if we could use such a term, is primarily a matter of individual capacities. With a community of only average intellects, one can hope only for social policy which reflects the mediocrity of the electorate.

Such an argument overlooks the fact that public opinion is not just a product of individual minds working in isolation, but is the cooperative product of many minds, each stimulating and affecting every other. Thus Cooley says: "Public opinion is no mere aggregate of separate individual judgments, but an organization, a cooperative product of communication and reciprocal influence. It may be as different from the sum of what the individuals could have thought out in separation as a ship built by a hundred men is different from a hundred boats each built by one man".⁽²⁾

1. THE GREAT SOCIETY, Chap. XII.
2. SOCIAL ORGANIZATION, Page 121.

Hobhouse says in this connection: "The common will may be thus very different from that which the wills of the individuals constituting the community would be if they were not members of the community and did not try to thing and act in partnership" (3). It will be our purpose, in this chapter, to consider some of the other factors affecting the formation of public opinion, and to show that intelligent public will is not solely dependent on the average of individual capacities.

Let us assume that native abilities are distributed in the population according to the normal curve, ranging from the lowest feeble-minded to the genius. We may, then, rule out of consideration the feeble-minded. These are admittedly incapable of carrying on a normal social life due to an "arrested mental development existing from birth or early childhood". (4) At a liberal estimate perhaps the number of such persons would not make up more than the lowest five per cent on an intelligence scale. It may be argued that there is no warrant for such arbitrary exclusion, since the difference on a scale between the sub-normal and the normal is no greater than that between the normal and the super-normal. The absolute difference between an "I. Q." of 40 and one of 100 is the same as that between an "I. Q." of 100 and one of 160. The social significance of the latter difference is, however, not nearly as great as that in the former. The difference in the first case is that between a person who cannot be taught to dress and feed himself, and one who can achieve a very substantial degree of economic and social success. As Professor Bagley says: "..... innate variations diminish rapidly in social significance as we go up the scale from idiot to genius". (5) Let us turn our attention, then, to the remaining ninety-five per cent. It will be our purpose to show that the efficiency of the group in action, the intelligence of public decisions, the capacity to build up and maintain a high civilization will depend less on the individual mental capacities of the population, than it will on two other factors, namely: (1) the nature of group organization for the formation of public opinion; (2) the development of a group unity through the development of a group morale.

Social Organization and Public Opinion.

Professor Ross has shown us, in his **Social Psychology** (6) the effect of the size of social groups, the degree of physical contact within them, the degree of inter-communication, similarity as to race, language and culture on group behavior and psychology. Individuals taken group wise never act as individuals do in isolation. The impulses, feelings and ideas of each individual furnish the stimuli to call forth impulses, feelings and ideas from other persons. Stimuli in the shape of ideas and feelings elicit responses from others, which responses themselves serve as stimuli to call forth still other responses. This is the process which sociologists have called inter-stimulation. As a result of it, groups form opinions, make decisions, and carry out policies as groups. Such social behavior may far transcend in efficiency and intelligence the be-

3. **SOCIAL DEVELOPMENT**, Page 178.

4. See definition of feeble-mindedness, **BULLETIN NATL. COMM. FOR MENTAL HYGIENE**, 1924, Page 1.

5. "Professor Terman's Determinism", **JOU. ED. RES.**, Vol. 6, Page 378.

6. See chapters 3, 4, 5.

havior of the individual in isolation, or it may be more blind, stupid and unintelligent than any one individual would be, free from the stultifying influence of the mob. The difference depends on the nature of the organization within the group. In this connection contrast the behavior of a mob with that of a small deliberative assembly. The high state of suggestibility of the crowd, engendered by close physical contact, the excitement aroused by appeals to prejudices and hates, by loud voices gesticulation, violent and passionate denunciation, seem to anaesthetize the higher intellectual processes and reduce men to the brute level. It is conceivable that the most intelligent may be influenced to act no more sensibly than those of low intellectuality. Appeal to reason is futile. The only understood appeal is to the emotions. Ross says: "In a sudden crisis we expect sane acts from the man who is 'cool', who has not 'lost his head'. Now, the very hurly burly of the crowd tends toward distraction. Then, the high pitch of feeling to which the crowd works up, checks thinking and results in temporary imbecility. There is no question that, taken herd wise, people are less sane and sensible than they are dispersed". (7)

Compare, now' the small deliberative assembly. "In a real deliberative assembly there is a possibility that the best thought, the soundest opinion, the shrewdest judgement advanced from any corner will prevail". (8) Each member of the committee comes to it with a set of ideas and opinions which have come out of his experience and his personal attitudes. The opinion of each member modifies that of every other, until, perhaps, the resulting decision is superior in intelligence to that any one alone could have evolved. Hobhouse describes the operation of such a group thus: "The essence of the matter, if the committee is a reality, is that the question is discussed, views exchanged, facts and arguments adduced. The five minds act upon one another, no doubt with varying degrees of energy, and in the end there is a decision which the majority approve, and by which the minority, if they remain members of the committee, are more or less bound — more or less with understandings which would vary in different cases." (9)

Specialization and Expert Knowledge.

If we turn our attention, now, to the community at large we will find that the same general principles hold true. The level of thinking in the community depends on the nature of its organization, on the degree that the masses become accustomed to accepting the opinions of those who are best informed on the questions to be settled. As Professor Hobhouse says: "The behavior of the group will be affected, not only by the character of its members, but by the nature of its organization". (10)

As civilization and culture grow, social relationships become increasingly complex. With the growth of population, the development of transportation, increasing specialization in industry, shift of the population from the countryside to the large city, the rise of class and sectional interests the interdependence of the members of the great society becomes ever greater. The problem of control, both in industry

7. Ibid. Pages 46-47.

8. Ibid. Page 47.

9. SOCIAL DEVELOPMENT, Page 180.

10. Ibid. Page 179.

and in the general field of social relations grows constantly more intricate and difficult. The mass of detail which it is necessary to comprehend before one can have any intelligent opinion on all the phases of the public business is too great for any one mind. There was a time when it was practical to allow public opinion even on the details of policy. That time has passed. We must now have recourse to the service of the specialist and the expert. On the details of public policy there can be no intelligent public opinion. Thus, long ago the manager of the great business enterprise has given up the impossible task of seeking to understand the complex of affairs of his whole business. He depends on his departmental managers for reports and opinions and integrates them all into a general policy for the whole corporation. The same is true in science. One cannot be expert in all fields, and to claim knowledge of all is to admit ignorance of all. The same is true in the conduct of public affairs. A sensible public opinion cannot be created on the details of public administration. To administer these details the public employs the expert. Mark Twain once said: "Men are usually competent thinkers along the lines of their specialized training only. Within these limits, alone, are their opinions and judgements valuable; outside of these limits they grope and are lost—usually without knowing it".(11) Professor Cooley points out: "The work of the world is mostly of special character, and it is quite as important that a man should mind his own private business—that is, his own particular kind of service—as that he should have public spirit".(12) But there are some questions which can and must be decided by public judgement. "The questions which can profitably be decided by this direct and general judgement of the public are chiefly those of organic change or re-adjustment, such, for instance, as the contemporary question as to what part the government is to take in relation to the consolidation of industries".(13) Such questions will have to be decided on the basis of information supplied by the expert.

Group Organization Under Expert Leadership.

The big problem, then, is to secure such social organization as will bring expert and disinterested knowledge to the solution of public problems, and then the development of public opinion on the basis of knowledge thus furnished. Lippmann, visualizes an intelligent society as one that organizes its experts into disinterested research bodies whose functions it shall be to discover facts, knowledge, information.(14) These bodies will be divorced entirely from officials who formulate policy, but they will provide a body of information upon which policy may be based. That is, they will tell what the results of particular policies are likely to be. It will then be up to the policy formers, and ultimately the public, to decide the direction in which it wants to go. The tradition of basing policy on ascertained fact will then be developed, and replace the old method of basing it on what Lippmann calls "the pictures in our minds", which may not at all correspond with the actual facts.

11. NORTH AMERICAN REVIEW, Vol. 176, Pages 175-176.

12. SOCIAL ORGANIZATION, Pages 128-129.

13. Ibid. Page 129.

14. PUBLIC OPINION, Page 402.

The developing of the critical faculties of the masses in this way implies no change at all in the average of their innate capacities. It means simply that access to information and knowledge will help to sweep away those superstitions and prejudices which often make the masses so stupid. Lippmann visualizes the teacher developing the critical faculties of his pupils thus: "He can teach him, for example, to look in his newspaper where the dispatch was filed, for the name of the correspondent, the news service, the authority given for the statement, the circumstances under which the statement was secured.....He can by the proper use of history, make him aware of the stereotype, and can educate a habit of introspection about the imagery evoked by printed words. He can, by courses in comparative history and anthropology produce a life long realization of the way codes impose a special pattern on the imagination".(15)

A prominent American critic is fond of fulminating at length against the stupidity of the common herd. "Main Street" and "Babbitt" have become words for the mediocrity, self complacent smugness and ignorance of the average American. Many times this ignorance is regarded by these critics and writers as due to lack of innate capacity to comprehend. The outcry against evolution in some quarters is regarded as evidence of the "moron-mindedness of the American people as a whole.(16) But is that the case? We would not deny at all that there is such stupidity and intolerance. But it is not due to any inherent lack of capacity to acquire knowledge. It is due to lack of opportunity, or otherwise to the existence of superstitions, and attitudes, or as Lippmann calls them, stereotypes, which render the individual impervious to penetration by the simplest facts. The opposition to evolution in the south is probably not due to any innate lack of ability to comprehend the theory itself, but it is due to the existence of religious attitudes and beliefs which does not permit the entrance of ideas which are contrary, or seem to be, to the particular traditions which happen to be held.

Intelligent public opinion, then, depends on the degree of organization for thinking. Social intelligence is not a sum or an average of individual abilities. If the tradition of relying on fact and information instead of on superstition and stereotype, and if respect for knowledge of the expert, for investigation and science can be developed public opinion may come to transcend by far the intelligence of the average person in the group.

Social Efficiency and Morale

Professor Graham Wallas points out that the creation of intelligent opinion alone is not enough for intelligent action, but that there must be a means of integrating individual wills and desires into a common purpose.(7) This common purpose or will is another name for the group spirit which we have come to call morale. It would almost seem that the execution of public policy is hindered by the very conditions of its growth. As we have pointed out, the develop-

15. Ibid. Page 20.

16. See the writings of H. L. Mencken.

17. THE GREAT SOCIETY, Chaps. XI. and XIII.

ment of public opinion in a modern society makes inevitable the division of the larger community into innumerable interest groups. Each group tends to acquire a sense of existence as a separate entity, develops a set of habits and mental attitudes peculiar to itself, and often times acquires a group of vested interests. A permanent stratification of society tends to be set up, which resists synthesis, unless loyalty to a higher group can be developed. The tendency to stratification has marked all societies in greater or less degree, and the inevitable specialization and division of function in our modern civilization threatens to produce it now in even more aggravated form than before. The control of these conflicting interests is partly a matter for the development of the overt machinery of social control, law and government. But law and government rest on a deeper spiritual unity, a unity of common beliefs, customs, traditions, ideas and ideals; in short on a group spirit which we may call morale. The development of such a spirit is to a small degree only, a matter of intelligence. It depends more on emotional attitudes, sympathies, feelings, even superstitions. Men can be convinced that social policies may be right intellectually but still fail to put forth the will to carry them out.

This group spirit which we call "morale" is almost indefinable. G. S. Hall defines it as ".....the maximum of vitality, life abounding, getting and keeping in the very center of the current of creative evolution; and minimizing, destroying or avoiding all checks, arrests and inhibitions to it." (18) He finds it to be a kind of spiritual condition of the social body, (19) Hocking has the same idea when he says "What 'condition' is to the athlete morals is to the mind." (20) Bogardus describes it further: "Group morale is a product of the interaction of the organic and feeling tones of all group members. In group morale there is more than an adding of personal morales; there is a new tension, a heightened determination, and a vigor over or above the mere sum of the morales of individuals." (22) During the great war we heard much talk of morale. The capitulation of the German Empire was spoken of as due to loss of morale; the complete defeat of Russia and the fall of the Monarchy was called a collapse of morale. Hocking says in this connection: "In no war, I judge, has the human quality counted for so much; the endurance, the initiative, the power of sacrifice, the loyalty, the power to subordinate personal interest and pride, the power of taking the measure of an event, of discounting the unfavorable turn, of responding to frightfulness with redoubled resolution rather than with fear, of approaching the real emergency and rising immediately to meet it. It is these qualities of mind and character which will win the war." (23)

But it is not only in war time that morale is necessary. The same kind of spirit must exist if social evil is to be subdued. The advancing of the causes of prohibition, abolition of child labor, world fellowship, industrial democracy, or any other social movement depends on the

18. MORALE, THE SUPREME STANDARD OF CONDUCT, Page 1.

19. Ibid. Page 27.

20. MORALE AND ITS ENEMIES, Page 14.

21. SOCIAL PSYCHOLOGY, Page 300. See also Gault, SOCIAL PSYCHOLOGY, Page 192.

22. Ibid. Page 300.

23. "Morale", ATLANTIC MONTHLY, Vol. 122, Page 723.

development of a common spirit through the wide acceptance of similar beliefs, traditions, values and standards. Corruption and vice may stalk unashamed in the face of public apathy. No matter if a people can be convinced intellectually that crime, defiance of the law, and public corruption are social evils; unless public indignation can be aroused against them the criminal and corrupt politician are safe. International peace will never be attained through the creation of legal machinery for the settlement of international disputes alone. It can only come through the uprooting of hates and prejudices. It must be done through the creation of new mental attitudes toward the question of war. This will be done, in part, by showing what unsound foundations international animosities rests on, that wars are generally made by a few individuals who may profit from them. In part, it must be done by an appeal to the common interests and sympathies of the conflicting groups and to their sympathy for the larger group, humanity. Child labor will never be abolished by the publishing of statistics on the effect of child labor on the health or productive efficiency of the nation. It will cease to be tolerated when it is brought home to the masses what child labor means in stunted bodies and minds, in possibilities never realized, in sickness, suffering, ignorance and degradation.

We see, then, that morale is not primarily a matter of intellectual conviction. It is a belief, a faith in the worthwhileness of the continued existence of the group, and a desire to put over these changes which are believed to be advantageous to the group. It implies the acceptance of a body of ideals and values for which the individual is willing to sacrifice himself. There is a large element of faith in the spirit which we call morale. As Hocking says, "Morale for all the greater purposes of war, is a state of faith; and its logic will be the superb and elusive logic of human faith....morale can never reach its height unless the aims of the war can be held intact in the undissembled moral sense of the people." (24)

The point made in the preceding paragraph is practically the same as that made in Professor Kidd's book. **The Science of Power**, when he discusses the "emotion of the ideal as the supreme principle of efficiency in the collective struggle of the world". (25) Perhaps Kidd does not claim too much when he says, "It is evident that there is no goal to which the emotion of the ideal is not capable of carrying the human mind; "or again;".....given the right set of ideals, the emotion of the ideal could transform our civilization in a single generation". But faith in an ideal is not the only requisite for morale. There must also be faith in leadership, faith in the other fellow, and a belief that he will do his part, and finally a faith in human nature and in the value of continuing the struggle of humanity for a more complete existence, even though one may have no direct profit from it.

Social progress does not depend, then, on the development of intelligence alone. It depends also on the common acceptance of different standards, values and ideals from those that have prevailed in the past. It is not a matter of changing the quality of peoples' minds, but chang-

24. MORALE AND ITS ENEMIES, Page 23.

25. Pages 154-155.

ing the content of them. We cannot get far by trying to change the innate abilities of the population, and if this attempt to change abilities degenerates into a propaganda for race and class discrimination, as it sometimes threatens to do, we defeat our own purpose. We cannot do better in closing this chapter than to quote the words of a noted biologist and neurologist, from whom, perhaps, we might expect a different attitude. (25) "If we could forecast the future of progressive evolution on this planet, the question is not whether the individual human mind of today has greater intellectual capacity than those of the ages of antiquity. For this we have no proper standard of measurement in any event. But the question is irrelevant. What we want to know is, does the culture of today exhibit better teamwork than of old, is the machinery of cooperative effort more efficient, are we more neighborly, and have we a proper understanding of the searching question, who is my neighbor?"

26. Herrick C. J. THE NEUROLOGICAL FOUNDATIONS OF ANIMAL BEHAVIOR, Page 309.

CHAPTER VI.

INTELLIGENCE TESTS AND THE RACE PROBLEM

Race and Intelligence

Of all the uses to which the intelligence tests have been put, perhaps none have aroused more comment and controversy than their use in the measurement of racial differences. The race question is one which arouses so much popular interest that it was natural, when it began to be believed that tests measuring pure native capacity had been devised, that attempts would be made to solve the problem with the aid of these instruments. It is unnecessary for us to go into the history of the race question here. (1) The doctrine of race superiority has its inceptions, perhaps, with de Gobineau's famous **L'Inegalite des Races Humaine** and Chamberlain's **Foundations of the Nineteenth Century**. The idea was developed by a number of other writers, (2) and with the war and its aftermath, spread to the United States where it has been popularized by such writers as Grant (3) and Stoddard (4). The use of the intelligence tests to support the arguments of the "superiority theorists" is perhaps best known in Brigham's **American Intelligence**. Other psychologists (5) have also helped to swell the mass of literature on the subject, of which, perhaps, the most important is Dr. Kirkpatrick's recent book (6) already referred to in this study.

Studies of Racial Differences

The mass of material on mental differences between races and national groups is too large to review in detail in this study. It will be our purpose to mention only a few of the typical studies and report their conclusions.

One of the earliest attempts to measure psychological differences between races is a study reported by Professor Woodworth in *Science* for February, 1910. (7) The author reviewed a number of earlier studies

1. For a more complete review of the question see the author's unpublished manuscript: POSSIBLE APPLICATIONS OF MENTAL TESTS TO SOCIAL THEORY, Univ. of Mo. library.

2. See La Pougé, *L'ARYEN, SON RÔLE SOCIAL*; Le Bon, *PSYCHOLOGY OF PEOPLES*.

3. Grant Madison, *PASSING OF THE GREAT RACE*.

4. *THE REVOLT AGAINST CIVILIZATION*.

5. See works of Ferguson, Garth, Young, Arlitt and others.

6. *INTELLIGENCE AND IMMIGRATION*.

7. "RACE Differences" *SCIENCE*, Feb. 5, 1910, Pages 170-186.

of primitive peoples in comparison with civilized and combined them with some of his own observations. Professor Woodworth reached the conclusion that there exists no important race differences in sensory acuity, and that the apparent differences in sensory motor capacity, and more complex mental operations are so much influenced by differences in acquaintance with tests materials that we can scarcely say they are racial or innate. (8)

The most comprehensive study of differences between races is the army study. The results are reported in *Memoir XV* of the National Academy of Science, but presented in a more intelligible form in Professor Brigham's book. We shall report a few of the results presented in his book. The following figures indicate the standing of each of the following countries in terms of average scores made by their natives on a combined intelligence scale; (9)

England	14.87	Ireland	12.32
Scotland	14.34	Austria	12.27
Germany	13.88	Turkey	12.02
Denmark	13.69	Greece	11.90
Canada	13.66	Russia	11.34
Sweden	13.30	Italy	11.01
Norway	12.98	Poland	10.74

The table shows that those countries which we ordinarily classify as predominatntly Nordic attain the highest scores on the tests. When all these groups are classified as Nordic, Alpine and Mediterranean we get the following results: (10)

	Average on Combined Scale	No. Cases
Nordic	13.28	3456
Alpine	11.67	4766
Mediterranean	11.43	4196

For purpose of comparison we might add to the above figures the average score of the negro draft on the combined scale. This was 10.41 on the basis of 23,596 cases. (11) Professor Brigham proves beyond a shadow of a doubt that there are various differences in **mental testing ability** among the various racial and national groups which he compares. He fails to show, however, that these differences are innate or that they are of great social importance. From his study the author concludes that, since we are getting progressively larger increments of immigration from the less intelligent national and race groups, that the average of American intelligence must be declining. (12)

After the war the use of the tests to measure race differences has become increasingly popular, and a large number of reports of such investigations have been published. Space permits the mention only of some of them here. In 1920 Miss Murdoch, using the Pressey group point scale, found that Jewish and American children surpassed Italian children, and that the negro children, examined at the same time did better than the Italian but poorer than Americans and Jewish

8. Ibid. Page 178.

9. A STUDY OF AMERICAN INTELLIGENCE, Table 9, Page 120.

10. Ibid. Page 169. For Brigham's method of combining nationalities into Nordic, Alpine etc. see pages 168-69.

11. Ibid. Page 180.

12. Ibid. see concluding chapter.

children.(13) Miss Arlitt found that Italian children tested far below native born American children.(14) Using the Sanford-Binet scale G. L. Brown found that school children of the Germanic groups were superior to school children of the non-Germanic.(15) Professor Pintner found that foreign born children, and children of foreign born parents are inferior to native born of native parentage.(16) Madsen gets similar results in his investigations.(17) Dickson finds a wide margin of superiority of children of native born parents over children of foreign born from southern Europe,(18) and Miss Thompson concludes from retests of many of the same children after five years, that the intelligence of many of these immigrant groups has not increased with age.(19) Professor Young, after reviewing these and other studies concludes that the tests prove beyond the shadow of a doubt that the American stock and the north European stock is inherently more intelligent than the southern European. He believes that the tests may have wide use as a basis for excluding undesirable immigrant stocks.(20) Bertha M. Luckey, after studying the children of a number of different nationalities at the psychological clinic in Cleveland, finds that American and Jewish children score highest, but that these two groups have the largest number of children who fall to lowest intelligence levels on the scale.(21)

Indian and American children have been compared by Garth(22) and Hunter.(23) Both report a clear superiority of American children and find intelligence inversely correlated with amount of Indian blood. Another writer, however, admits that the conditions under which Indian children have grown up may have a great deal to do with the score.(24)

Chinese and American students have been compared by J. W. Creighton.(25) He finds that Chinese students excel in reaction time, rote memory, free association, speed of writing, Americans in controlled association, logical memory, and analogues. Another study finds no marked difference between American, Chinese, and East Indian students.(26) Yeung finds that the "I Q" of the Chinese students whom he examined to be but little below the norm for Americans.(27) Fuk-

13. "A Study of Race Differences in New York City", SCH. & SOC. Vol. 11, Pages 147-150.

14. "On the Need for Caution in the Establishment of Race Norms." JOU. APP. PSYCH. Vol. 5, Pages 179-83.

15. "Intelligence as Related To Nationality", JOU. ED. RES. Vol. 5, Pages 334-27.

16. "Intelligence of Foreign Children", JOU. ED. PSYCH. Vol. 13, Pages 214-22.

17. JOU. ED. RES. Vol. 3, Page 13.

18. "Use of Mental Tests in School Administration", STANFORD UNIVERSITY STUDIES, 1919.

19. VALIDITY OF STANFORD BINET TESTS, Unpublished Master's Thesis, Stanford University, 1922.

20. "Intelligence Tests of Certain Immigrant Groups", SCI. MO. Vol. 15, Pages 417-434.

21. "Racial Differences in Mental Ability", SCI. MO., Mar. 1925.

22. "Intelligence of Indians", SCI. MO. VOL. 46, Pages 635-647; "Results Of Some Tests on Full and Mixed Blood Indians", JOU. APPL. PSYCH. Vol. 5, Pages 359-372.

23. "Relation of Degree of Indian Blood to Score on Otis Tests", JOU. COMP. PSYCH. 1922, Vol. 2, Pages 257-277.

24. Lappin V. P. MENTAL AND PHYSICAL DEVELOPMENT OF INDIAN CHILDREN, Master's Thesis, Univ. of Mo. 1921.

25. THE CHINESE MIND, Ph. D. Thesis U. of Mo. 1917.

26. Waugh, "Comparison of Oriental and American Students Intelligence", PROC. AMER. PSYCH. ASSOC. 1920.

27. "Intelligence of Chinese Children", JOU. APPL. PSYCH. Vol. 5, Pages 267-74.

uda found that a limited number of Japanese children tested but slightly below the American norm.(28) Smith attributes the superiority of the Americans he examined over the Orientals to superior opportunity.(29) In general it may be said that the inferiority of the Orientals to the native white stock in America is not so great as that of the southern European on the basis of intelligence tests.

Perhaps, the most extensive studies of the racial differences are the investigations of the comparative mental capacities of Negroes and Whites. Most of these studies find the ability of the Negro to be considerably lower, on the average, than that of the white race. A mention of some of these studies will indicate the general results which are typical of nearly all of them. The earliest investigations of racial differences were studies of comparative school achievements of Negro and white children. The earliest of these was Macdonald's study of Washington school children.)30) On the basis of school marks, he found that the white children excel Negro children at every age, and that the superiority of the whites increase with age. With the use of the Binet Scale Phillips studied school retardation in Philadelphia. He found a per centage of retardation for Negro children of 57.5%, with an average for the city of 40.3%.(31) On the basis of school marks another student found that, "the efficiency of the colored student was 76% of the whites." (32) Professor Pyle, on the basis of investigations of Missouri school children, reaches the conclusion that the Negroes have about two thirds the ability of white children of the same ages.(33) He finds, however, that Negroes of the better social classes do better on the tests than those of poorer classes. Ferguson finds that differences between white and Negro children become less in the upper grades, which the author attributes to the fact that the Negro in the upper grades and the high school is above the average of his race.(34) Another study shows Negroes 72.8% as efficient as whites in setting up sensory-motor coordinations.(35) Odum found that at seven years Negro children are inferior and that inferiority increases with age.(36) Morse gets similar results.(37) O. S. Ferguson has summarized the results of a number of investigations.(38) He reaches the conclusion that the Negro is "highly capable in sensory and motor capacities and in native retentiveness; his shortcomings are logical or rational and more purely intellectual." The author gives it as his opinion that the Negro will never be the mental equal of the white race, on the average,

28. Fukuda T. "Some Data on the Intelligence of Japanese Children", AMER. JOURNAL OF PSYCHOLOGY, 1923; 34, Pages 599-602.

29. Paper read before Amer. Psychological Assoc. 1924.

30. McDonald, PHYSICAL AND ANTHROPOMETRICAL MEASUREMENT OF WASHINGTON SCHOOL CHILDREN, Report Commissioner of Ed. 1897-1898.

31. "RETARDATION IN PHILADELPHIA SCHOOLS", PSYCH CLINIC Vol. 8, Pages 190-91.

32. Mayo M. J., "Mental Capacity of the American Negro" ARCHIVES OF PSYCHOLOGY, No. 28, Page 193.

33. "Mind of the Negro Child", SCH. AND SOC. 1915, Pages 351-360.

34. "Psychology of the Negro", ARCHIVES OF PSYCHOLOGY, Vol. 25, No. 36, 1916.

35. Arlitt A. "Relation of Intelligence to Age in Negro Children", JOURNAL OF APPLIED PSYCHOLOGY, Dec. 1922.

36. PSYCHOLOGY OF THE NEGRO, Unpublished Master's Thesis, U. Mo. 1916.

37. "Negro Children in the Public Schools of Philadelphia", ANNALS AMERICAN SOCIETY OF SOCIOLOGY AND POLITICAL SCIENCE, Vol. 5, Pages 48-49.

38. "Relation Between Mental Development and Growth, Negro and White Children Compared", POPULAR SCIENCE MONTHLY, Jan., 1924.

39. "The Mental Status of the American Negro", SCIENTIFIC MONTHLY, Vol. 12, 533-42.

altho the overlapping of the races is so wide that no individual Negro should be excluded from educational and cultural opportunities on the ground that he is a member of an inferior race.(39) Another review of the same problem concludes with this statement: "On the whole, there are found to be distinct differences between the two races considered both as to intellectual ability, as measured by the tests used, and in school achievement."(40) The writer seems to believe, however, that the "differences in native capacity are not actually so great as they seem to be." Taken together with the average score for the colored draft on the army tests of 10.41 as compared with an average of 13.54 for the white draft, these studies seem to indicate a clear superiority of the White race over the Negro in mental capacity, as such capacity is measured by intelligence tests.

There are, however, some studies the results of which are at variance with those reported above. Dr. W. W. Clark reports the results of a study which was made by the Department of Psychology and Educational Research of the Los Angeles city schools.(41) The study compares the intelligence of 510 Negro students with that of the entire white population of fifteen elementary schools. The **National Intelligence Tests** were used. The median "I. Q." for the Negroes was 104.7 as compared with 106.0 for the white children. The author concludes: "There is no significant difference shown in the intelligence levels of the Negro children and that of the children in the fifteen schools as a whole." On accomplishment tests the two races did about equally well. The median "A. Q." for the Negro was 95.3, for the whites 95.9. A comparison of the relation between chronological and mental ages showed the mental age of the Negro children to be 0.346 of a year above the average chronological age, while that of the white children was 0.18 of a year above the chronological age. It is fair to say that the data shows no significant differences between the two races in either "intelligence" or "accomplishment." Another study, reported by Dagne Sunne, agrees with the Clark study in finding few significant differences between the races.(42) In this study the **National Intelligence Tests** and **The Meyers' Mental Measure** were used. Individuals of both races were found in the highest and lowest 3% at each age level. The highest score on the **National Intelligence Tests** was made by a white girl, and in the **Myers' Mental Measure** by a Negro girl, and the third highest by a Negro boy. 1.6% of the white children obtained higher scores on the **National Intelligence Tests** than the highest Negro scores. The author concludes: "The difference in per centage of the two groups may be significant but it is small." No very definite conclusions can be drawn from these studies. In general they seem to indicate a superior **mental testing ability** for the white race over the Negro. How much this difference is actually racial is hard to determine. How important a quality this ability is, if it is racial, we do not know either. As the author of one of the above studies says: "It is difficult to determine how much racial differences and how much dif-

39. Ibid. Page 542.

40. Whitney F. L., "Intelligence Levels and School Achievement", PED. SEM., Vol. 30, Pages 69-86.

41. EDUCATIONAL STATUS OF NEGRO CHILDREN IN LOS ANGELES SCHOOLS, Preliminary report, Bureau of Psych. and Ed. Res., Los Angeles City Schools.

42. "Comparison of Negro and White Children on Verbal and Non-Verbal Tests". SCH. AND SOC. Vol. 19, 1924, Pages 469-72.

ferences in school training and social conditions contribute to divergence in the tests." (43)

Race and Culture

We have now indicated in a limited way the use of the intelligence tests for the measurement of race differences. It will be our purpose, in the following pages, to indicate some of the limitations on drawing conclusions as to the cultural possibilities of race on the basis of supposed racial differences in intelligence. To draw such conclusion conflicts directly with the assertions of the anthropologists, archeologists and ethnologists who have given their whole lives to the study of peoples and culture. These writers maintain that race differences may exist, but that cultural differences can be much more scientifically explained in other terms than those of race. (44) They point out that the representatives of nearly all the important races have achieved high levels of culture, that the same race, at one time in its history may be low, while at other times it may be on a high cultural plane. They show that some representatives of a race may be living in advanced stages of civilization, while others, at the same time, remain in savagery or barbarism. Cultural changes do not seem to be at all correlated with racial changes. Changes in culture occur without any changes in racial makeup of a people, while racial intermixture often takes place without disturbing at all the level of culture. (45) The view of the cultural anthropologists is fairly represented by Professor Lowie in the following words: "We can, farther, say positively that whatever differences may exist have been grossly exaggerated. In the simpler mental operations, comparative psychological studies indicate a specific unity of mankind. Differences in culture are certainly not proportional to mental differences Since, finally, cultural differences of enormous range are found within the same race, and even within very much smaller subdivisions the ethnologist cannot solve his cultural problems by means of the race factor." (47) Locke discusses the relation of race to culture in a recent article. He points out that although race and culture "have at all times significant and definite relationships, they, nevertheless, are in no way organically or causally related." (48) Sapir points out that the concept—race, is often a social and ethnic term and not a biological one. (4) He says: "The current assumption that the so called genius of a people is ultimately reducible to certain inherent hereditary traits of a biological or psychological nature does not, for the most part, bear very serious examination. Frequently enough, what is assumed to be an innate racial characteristic turns out, on closer study, to be the resultant of purely historical cause. A mode of thinking, a distinctive type of reaction, gets itself established in the course of a complex development as

43. Sunne, Op. Cit. Page 472.

44. This is essentially the attitude of Kroeber, Lowie, Wissler, Goldenweiser, Levy Bruhl, Boas, Rivers and others.

45. Goldenweiser A. A. "Race and Culture in the Modern World", *JOU, SOCIAL FORCES* November 1924. Page. 127.

46. Compare Woodworth, *SCIENCE*. February, 1910. Pages 170-186.

47. *CULTURE AND ETHNOLOGY*, N. Y., 1927. Pages 45-46.

48. "Race and Social Culture", *HOWARD REV.* June, 1924, Vol. 1, Nos. 2, 3. Pages 296-299

49. "Culture, Genuine and Spurious", *AMER. JOURS SOC.* Vol. 29. Page 406

typical or normal; it serves then as a model for the working over of new elements of civilization." Instead of culture being produced by race, then, it seems that race in this sense is a product of culture. (50) When we note how the term—race is surrounded by a complex of emotions and prejudices, the truth of the above statement becomes in- is all against the conclusions that race is an important element in determining culture. Even if there are real average differences in mental ability between races, the degree of overlapping is so large, that we find stupid and bright individuals in all races. Culture cannot be explained, then, in terms of inerrent mental differences between races.

Race Purity

The mental testers, in comparing the relative ability of races overlook another fact, that the groups which they compare are not racially pure. This is true of the major races and doubly true of the sub-races such as the so-called Nordic or Mediterranean. Since man's first dispersion over the earth there has been so much immigration and wandering of peoples, with its resultant intermixture, that we can no longer find examples of groups which represent pure racial types. Goldenweiser says of the white race: "Of all people—and it is a curious thing for us to remember today in view of recent discussions—white man is the most mixed of all. There is not a race represented in the world today that is not in the blood of the white man to some degree. Pure race is a myth. This, however, does not mean that pure types do not appear." (52) This is the same point made by Professor Boas in a recent article. (53) He points out that a race is made up of numerous family lines differing from each other both in bodily and mental conditions. A whole racial type can never be described by a few discriptive terms, because there will be so many individuals of deviating types. Even within family lines the variability of individuals may be so great that a family line might fall within several different races. He writes: "We have no right to speak of the hereditary characteristics of nations or races, because the latter vary within wide limits. Only if it is proved that the family lines constituting two races are throughout distinct can we speak of racial characteristics. For European local types, such as the Northwest European or Mediterranean no such proof can be given. On the contrary, the variability of the types is so great that the forms in different European localities overlap—that is, forms occurring in one area are not absolutely confined to that area." (54) It becomes clear, in the light of these facts, that to speak of the intellectual superiority of one race over another is an exceedingly uncertain matter. This criticism applies to most of the studies of racial differences cited above. It would certainly apply to Professor Brigham's analysis of the army statistics to prove the superiority of the Nordic. This author admits that his

50. This point is also made by Goldenweiser in his *EARLY CIVILIZATION*. Pages 14-51.

51. Compare Field, C. G., "Influence of Race in History and Politics", *HIBERT JOURNAL*, Vol. 21. Pages 287-300.

52. "Race and Culture in the Modern World", *JOU. SOC. FORCES*, November 1924. Pages 128-136.

53. "The Question of Racial Purity", *AM. MERCURY*, October, 1924; also "What is a Race?" *NATION*, January 28, 1925.

54. *Ibid.* Pages 169.

classification by no means secures a pure type.(55) If even the major races such as the Negro and the white are as mixed as anthropologists say they are, to talk about the pure Nordic or Mediterranean becomes nonsense. In this connection Herskovits says: "But to speak of typical Negro characteristics and intelligence, when conclusions are based on studies of a group mixed as largely with whites as the American Negro is mixed, is sheer folly How much greater folly, then, is the assumption that there are differences in innate intelligence between the racial groups of Europe which are so much more closely affiliated than the Negro and white." (56)

With these observations on the terms "race" as it is used by the testers, let us turn our attention to the tests themselves as measures of pure race capacity.

Intelligence Tests as Measures of Racial Capacity.

In an earlier chapter we have discussed the intelligence tests as measures of innate ability.(57) We have pointed out that they measure an indeterminate complex of hereditary and acquired traits, and that where experience and environment differ much between the subjects measured the tests are practically worthless as measures on innate differences. Such differences would surely exist between the various nationality groups examined by the army tests. They would probably exist between any of the racial groups which have been made the subjects of racial testing to which we have referred in this chapter.

That the army tests, as used to measure racial differences were very much affected by differences in cultural and social background of the groups tested seems likely for a number of reasons. The fact that test scores improve with length of residence would seem to bear out this point. The high correlation between amount of education and scores on the tests may be interpreted to support the same contention, in spite of Professor Brigham's denial of this possibility.(58) Considering the fact that the test materials are chosen from an American cultural environment, which differs considerably from that of the south or east European immigrants, we would expect the immigrants who have been here longer to make a better showing than the later arrival. The speed factor, which was so prominent in the tests, would almost certainly operate against the new arrival. The doctrine of race superiority, in so far as it rests on the results of the army tests is probably not very reliable. Its unreliability has been demonstrated by Professors Hexter and Myerson in a recent article.(59) They point out that the tests were so largely influenced by differences in background and experiences of the groups tested that they cannot isolate those factors which are inherent from those which are acquired. They also make another important criticism: When the foreign born are broken up into residence groups, that is, groups that have been in America for varying periods of time as Professor Brigham breaks them

55. See footnote, page 19, AMERICAN INTELLIGENCE.

56. "Brains and The Immigrant", NATION, February 11, 1925. See also Sapir, "Let Race Alone", NATION, February 25, 1925. Pages 21-216.

57. See Chapter III.

58. See Chapter II.

59. "12:04 vs. 13:77. A Study in Probable Error". MENTAL HYGIENE January, 1924. Pages 69-82.

up,(60) the number of cases become too small for statistical comparison. When these residence groups are subdivided again into racial groups any statistical comparisons become ridiculous. These writers conclude as follows: "We may agree that these mental tests show that recent immigrants are slower in their performance and have a lower score than do the native born or the long residence immigrants. That is, the long and short of the facts in this book on American intelligence. All the rest is assumption and contrary both to common sense and to science." (61)

The conclusion that differences between races and nationalities are largely due to differences in education and cultural opportunities is supported by a comparison of educational and cultural conditions in the various European countries with average scores made by their nationals on the army tests. As the results of a survey of all the data on racial tests to date, Mrs. Hallowell concludes: "Roughly, it seems that the nationality groups having the highest mental ages are from countries where the educational advantages are good, and vica versa, and the English speaking countries highest of all." (62) Professor Bagley reports similar results from studies which he made. A correlation of a ranking of several European countries in the development of school facilities, and a ranking on the basis of average scores made by their nationals on the army tests yields a coefficient of .84. If Turkey, for which no school statistics could be found, is omitted, and if the proportion of A and B men is made the basis of the intelligence ranking, the correlation rise to .91 (63). Similar comparisons of the various states of the Union point to the conclusion that where educational opportunities are most developed there we find the population ranking highest on intelligence tests. (64) It is also interesting to note that where the population is most Nordic there the per centage of illiteracy is high, educational conditions are backward and average scores on the army tests are lowest. A comparison of Massachusetts and South Carolina is interesting. Massachusetts ranked first in median school rating, median of six intelligence and efficiency ratings, adult white literacy, per cent A and B scores on Army Alpha, and second in median Alpha scores. South Carolina, out of the twenty six states compared, ranked 23.5 in school rating, 22 in intelligence and efficiency rating, 22 in literacy, 22 in per cent of A and B scores, and 18 in median Alpha scores. More than 25% of the population of South Carolina is native born while less than half of the population of Massachusetts is native born. Bagley estimates that if the score on the army tests were distributed by states, and correlated with an estimate of the Nordic blood in the population of these states the correlation would yield a coefficient close to -.50. (65)

A study of Negro scores on the army tests points to the conclusion, that education has more to do with the matter than has race. For example, when Negro scores are distributed by states they bear a closer resemblance to school conditions in those states in 1900 than do

60. See AMERICAN INTELLIGENCE.

61. Hexter and Myerson. Op. Cit. Page 82.

62. Unpublished survey, cited by Herskovits in article in the NATION, February 11, 1925.

63. "Army Tests and the Pro-Nordic Propaganda". ED REV. Vol. 67. Page 183.

64. "Do Good Schools Pay?" JOU. OF THE N. E. A. Vol. 12. Page 213.

65. "Army Tests and the Pro-Nordic Propaganda". Op. Cit. Page .

the white scores.(66) If the median Negro scores distributed by states are calculated, it will be found that the Negroes from the northern states surpass the median scores of literate whites from some southern states. The following table is interesting by the way of comparison:(67)

Median Alpha Scores

Whites		Negroes	
Mississippi	41.25	Pennsylvania	42.00
Kentucky	41.50	New York	45.02
Arkansas	41.55	Illinois	47.35
Georgia	42.12	Ohio	49.50

An interesting statistical study of possible factors influencing Army Alpha scores by states has been made by Howard H. Long.(68) Space permits only quotations of his conclusions here:

1. "We may conclude from the above after making all reasonable allowances for the crudeness of the data that native-born whiteness has been unwarrantably 'played up' by propagandists who have utilized Alpha scores for this purpose."
2. "These results have an obvious bearing on the question, how far may we depend on Alpha scores as indicators of native ability?"
3. "Once more comes to light the insecurity of drawing any but very limited conclusions from zero coefficients of correlation."

The language factor is another important influence affecting attempts at racial testing. This point has been discussed before(69) but we may give it a little attention here. The fact that the improvement on the Alpha tests for immigrants of long residence in the United States, as compared with those who have been here only a short time, was greater than on the Beta test indicates that language has something to do with the scores. The effect of language on immigrant scores has been made the subject of a recent study by Miss Margaret Mead.(70) Miss Mead studied the children of a small New Jersey town comparing children of American and Italian parentage. The following figures for the averages of the groups arranged according to an "index of brightness" indicate the results:

Home Language	Number of cases	Index of Brightness
Italian	82	65.00
Italian and some English	100	70.00
English and some Italian	64	73.90
English	23	72.93

It is not necessary to continue this discussion further. It must be admitted that intelligence tests of groups differing widely in educa-

66. Bagley, "Do Good Schools Pay?" Op. Cit. Page 213.

67. Gregg J. E. "Comparison of Races". SCI. MO. March, 1925. Pages 246-254.

68. "Factors Influencing Alpha Scores by States". HOWARD REV. June 1924. Pages 176-180.

69. See Chapter III.

70. Unpublished investigation, see Mead, "The Methodology of Racial Testing", Am. Jou. Soc. March, 1926, foot note. Page 667.

tional opportunities, cultural and social background, in the whole fund of past experience will be widely affected by these environmental factors. Only very limited conclusions can be drawn about innate racial differences, and the whole methodology of racial testing leaves the old problem of innate differences between races still unsettled. We may conclude with a statement from Miss Mead's article in which she summarizes everything that has been done in this field: "All these considerations should suggest extreme caution in any attempt to draw conclusions concerning the relative intelligence of different racial or nationality groups on the basis of tests, unless a careful consideration is given to the factors of language, education and social status, and a further allowance is made for an unknown amount of influence which may be logically attributed to different attitudes and different habits of thought." (71)

CONCLUSIONS

It has been held that the results of mental tests justify the following conclusions:

A. That the whole American Social and political tradition must be re-organized in the light of the results of intelligence tests.

B. That the tests have demonstrated such wide inequalities in intelligence that a democracy based on equality of right must inevitably create an artificial equality where none exists by nature.

C. That a social order resting on enlightened public opinion is impossible since the tests have demonstrated, at best, only an adolescent mentality for the masses of the people.

D. That society must be controlled and governed by the gifted minority.

E. That present economic and social stratifications reflects natural biological stratifications, hence democratic movements for the more equitable distribution of wealth, or equalization of social prestige and power, fly in the face of the natural order of things.

F. That the program of universal education is futile and wasteful since the natural limitations on the intelligence of the wide masses make them unable to profit by them.

G. That the limitations of native endowment on the part of certain races make them incapable of sharing in the fruits of the higher civilization developed by other races.

Our examination of the basis for the above generalization leads us to the following conclusions:

1. Differences in scores on mental tests reflect real differences in native endowment only when the home conditions, educational opportunities, and general cultural surroundings of all those tested have been exactly the same.

2. The differences in the early environment, particularly the psycho-social environment of those subjected to a mental test will be so great that there can be no certainty that the tests are measuring pure native differences, unaffected by differences in environment.

3. This would then lead to the conclusion that no methods have as yet been devised which so perfectly equalize differences in training, social surroundings and cultural conditions; in short, all those environmental influences which have previously acted on the subjects measured, that we can be sure that differences in test scores reflect real differences in native ability.

4. Mental tests measure a rather narrow specialized ability or set of abilities the social importance of which is only hypothetical.

5. The army tests were demonstrably so much affected by differences in educational opportunities and other cultural conditions that they are far from being those measures of pure native capacity which some seem to have believed them to be. If this is true, the generalizations based on them hardly hold.

6. If the tests do not measure innate capacity unaffected by experience or training, and if the capacity which they do measure has only a hypothetical importance in society, the contentions of the determinists sketched above do not hold.

7. Although wide individual differences in mental capacity undoubtedly do exist, and although the great masses of the people are, perhaps, not highly gifted by nature, public opinion and group will, if properly organized, may well represent the matured opinion of the most intelligent members of the group.

8. The efficiency of the group in action and the levels of attainment which it is capable of achieving will depend on the development of a group unity or morale. The development of this morale will depend less on the intelligence of the individual members of the group than it will on the common acceptance of the same fund of standards, traditions, values and ideals.

9. The organization of an intelligent group opinion, and the development of a group morale will be closely dependant on the wide dissemination among the masses of the best knowledge of the race, of the same patterns of conduct, of the same ideals, that is of the growth on the part of the great masses of that characteristic which Professor Bagley calls "horizontal intelligence." Nothing in the results of intelligence proves such a program impossible.

10. Since leadership is socially selected, its wise selection depends on the development of the critical capacities, of the intelligence of the wide masses of the people.

11. This would imply the widest possible extension of education, with mental tests serving as an aid to fitting that education to the need of each individual, in order that he may develop to the limit of his capacities, and find that position in life for which he is best suited.

12. The comparison of the races on the basis of mental tests with the idea of arriving at a measure, and so the social possibilities of these groups, of innate differences must take into consideration the following factors:

- a. The great intermixture of races which makes such a thing as pure race practically non-existent.
- b. The great variability of all races.
- c. The danger of confusing cultural and racial traits.
- d. The great difficulty of so equalizing the conditions of the test for two groups varying in cultural background as widely as do two ethnic groups, that group differences which may appear, could surely be attributed to differences in native capacity.

It may be said, in conclusion, that it has been no part of our purpose to argue that environmental factors are more important in the determination of behavior than are innate tendencies or abilities. In the present state of knowledge such a question cannot be settled. All that we have maintained is that the results of mental tests do not justify predetermined conclusions that a social order or a system of social control resting on democratic foundations is a necessarily inefficient and impracticable system.

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